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# The Evolution of Financial Instruments and the Legal Protection Against Counterfeiting: A Look at Coin, Paper, and Virtual Currencies

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# THE EVOLUTION OF FINANCIAL INSTRUMENTS AND THE LEGAL PROTECTION AGAINST COUNTERFEITING: A LOOK AT COIN, PAPER, AND VIRTUAL CURRENCIES

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## *Abstract*

*This essay discusses the requirements for the long-term acceptance of virtual currency as a financial medium of exchange by examination of fundamental criteria associated with the historical development of common tender and selected virtual currencies. The relatively recent appearance of Internet-based transactions have necessitated developing virtual forms of payment such as virtual currencies. According to the Financial Crimes Enforcement Network (“FinCEN”) of the United States Treasury,<sup>5</sup> virtual currencies are subject to regulation if that virtual currency has a substitutive purpose for facilitating the exchange of goods and services.*

*Although governments can place stipulations on currencies, users of*

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5. FIN. CRIMES ENFORCEMENT NETWORK, U.S. DEP’T OF THE TREASURY, FIN-2013-G001, APPLICATION OF FINCEN’S REGULATION TO PERSONS ADMINISTERING, EXCHANGING, OR USING VIRTUAL CURRENCIES (Mar. 18, 2013) [hereinafter FinCENa], [http://fincen.gov/statutes\\_regs/guidance/html/FIN-2013-G001.html](http://fincen.gov/statutes_regs/guidance/html/FIN-2013-G001.html).

*common tender, including virtual currencies, expect at least three basic privileges for a virtual currency to evolve from conception to realization. First, a virtual currency must be considered intangible personal property similar to trademarks, copyrights, and patents. Second, ownership disputes must be subject to a system such as a judicial proceeding or binding arbitration to resolve property as well as interest conflicts. Finally, a virtual currency must be subject to similar regulation as other financial instruments (e.g., legal tender, scrip, and credit cards) used in facilitating transactions.*

*One of the most common and critical aspects of safeguarding currency is protection against illegitimate representations of assets—that is, primarily against counterfeiting. We discuss the regulatory authority and/or lack of authority, of the sovereign States of the United States to regulate the counterfeiting of financial instruments used as currency, including virtual currency. Moreover, federal and foreign (non-U.S.) currencies are explicitly examined, but some virtual currencies are not regulated or authorized specifically by any government. Can a currency without formal codification from a government be regulated by a sovereign State? As financial transactions have shifted historically from various governments' legal tender to combinations of government and private issuances and from the hard currency of coins and paper to electronic transactions, many States' counterfeiting statutes are unclear or fail to consider that technological changes can impact legal and common tender. The rise of transactions facilitated by virtual currencies and regulations protecting states from virtual counterfeiting is examined and discussed.*

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## I. INTRODUCTION

Currency is a long established financial instrument used to facilitate exchanges of goods and services.<sup>6</sup> In addition to being a medium of exchange, currencies must hold value and be expressed in common units.<sup>7</sup> Furthermore, a currency can be legal tender,<sup>8</sup> as defined by a regulating authority,<sup>9</sup> or common tender by means of acceptance. Therefore, common tender would include many forms of virtual currency. Additionally, FinCEN notes virtual currencies are subject to regulation if that virtual currency has a substitutive purpose for facilitating exchanging goods and services.<sup>10</sup> As technology has fostered an environment where many financial transactions can occur in cyberspace,<sup>11</sup> technology has also promoted new types of financial instruments such as virtual currencies. A current example of the promotion of virtual currencies is an experimental anonymous electronic payment technology known as MintChip.<sup>12</sup> In April 2012, a competition began to create virtual apps for MintChip sponsored by the Royal Canadian Mint.<sup>13</sup> The purpose of the competition is to aid in the evolution of physical money to include a virtual form of payment.<sup>14</sup>

For this essay, *United States currency* is the current legal tender as authorized by the United States Congress, and as printed by the Bureau of Engraving and Printing<sup>15</sup> of the United States Department of the Treasury<sup>16</sup>

6. Keith Hart, *Money is Always Personal and Impersonal*, 23 ANTHROPOLOGY TODAY 12, 13 (2007); Stephen D. Williamson, *Private Money and Counterfeiting*, 88 FED. RESERVE BANK OF RICHMOND ECON. Q. 37 (2002).

7. Anatol Murad, *The Nature of Money*, 9 SOUTHERN ECON. J. 217, 217 (1943).

8. Currency in the U.S. is subject to 31 U.S.C. § 5103, “United States coins and currency (including Federal reserve notes and circulating notes of Federal reserve banks and national banks) are legal tender for all debts, public charges, taxes, and dues. Foreign gold or silver coins are not legal tender for debts.” 31 U.S.C. § 5103 (2012).

9. The United States Constitution defines the powers of Congress and reserves to it the authority to issue and regulate money. U.S. CONST. ART. I, § 8. This occurs both explicitly and implicitly. First, the Constitution explicitly provides that Congress is solely accorded the power “To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures.” U.S. CONST. ART. I, § 8, cl. 5. The United States implicitly provides this authority to Congress by prohibiting the states from coining money. U.S. CONST. ART. I, § 10, cl. 1 (stating “No State shall enter into any Treaty, Alliance, or Confederation; grant Letters of Marque and Reprisal; coin Money; emit Bills of Credit; make any Thing but gold and silver Coin as Tender in Payment of Debts; pass any Bill of Attainder, ex post facto Law, or Law impairing the Obligation of Contracts, or grant any Title of Nobility.”).

10. FinCENa, *supra* note 5.

11. Consumers can purchase cars, furniture (*e.g.*, at <http://www.overstock.com>), groceries (*e.g.*, at <http://www.peapod.com>), and airline tickets (*e.g.*, at <http://www.expedia.com>) to name a few.

12. Emily Jackson, *Royal Canadian Mint to Create Digital Currency*, TORONTO STAR (Apr. 11, 2012), [http://www.thestar.com/business/2012/04/11/royal\\_canadian\\_mint\\_to\\_create\\_digital\\_currency.html](http://www.thestar.com/business/2012/04/11/royal_canadian_mint_to_create_digital_currency.html); *The Royal Canadian Mint Challenged Software Developers to Create APPS for MintChip, the Evolution of Currency*, DEVPOST (Oct. 2, 2013), <http://mintchipchallenge.challengepost.com>.

13. DEVPOST, *supra* note 12.

14. *Id.*

15. The Bureau of Engraving and Printing is a “bureau in the Department of the Treasury” with “duties and powers prescribed by the Secretary [of the Treasury].” 31 U.S.C. § 303 (2012). The Bureau of Engraving and Printing was created during the Civil War to specifically deal with the problem of counterfeiting. Marcela M. Williams & Richard G. Anderson, *Currency Design in the United States and Abroad: Counterfeit Deterrence and Visual Accessibility*, 89 FED. BANK OF ST. LOUIS 371, 373 (2007).

16. The Treasury of the United States is authorized in 31 U.S.C. § 302 by the simple language, “The

and as coined by the United States Mint.<sup>17</sup> *Bank Notes* are financial instruments issued by banks.<sup>18</sup> *Foreign and non-U.S. currency* is defined as legal tender issues by a government entity such as a foreign power.<sup>19</sup> A *virtual currency* is an electronic or virtual common tender used as a medium of exchange that can be substituted for legal tender.<sup>20</sup> However, article I, § 10, clause 1 of the United States Constitution appears to prohibit states from independently recognizing digital currency as a substitute for legal tender. In addition to preventing States from minting their own money, article I §, 10, clause 1 of the United States Constitution prohibits States from accepting anything but “gold and silver coin” as “tender” in “payment of debts.”<sup>21</sup>

To illustrate the concept of valid financial instruments tendered as payment and present the practical realization of virtual<sup>22</sup> currency, we first must consider historical financial instruments (*i.e.*, coins, paper, scrip, and tokens) used as currency. By examining the historical use of these currencies, we can gain a deeper and more comprehensive understanding of the evolution of said instruments to project what protections and assurances are necessary for virtual currencies. These discussions are presented in Part II.

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United States Government has a Treasury of the United States.” 31 U.S.C. § 302 (2012). However, its on and off again history began on July 4, 1840, when it was constituted by what was commonly known as the Independent Treasury Act, which was repealed the following year on Aug. 13, 1841, only to again be reenacted and expanded five years later on Aug. 6, 1846 (incorporated in part under former § 472 of U.S.C. Article 31). At that time, the Treasury was designated as a depository where the actual money of the government—gold, silver, bullion, notes, and currency—was kept in kind as received from the public revenues, or deposited there by express authority of law, and where it remained the specific property of the government. Intermingling with any other funds was not permitted, because the Treasurer was not authorized to make other deposits unless specifically authorized. *See Branch v. United States*, 12 Ct. Cl. 281 (1876) (holding court-ordered deposit of seized cotton transferred from failed national bank was not a deposit into the United States Treasury because it was only being held in trust until the completion of court proceedings), *aff’d* 100 U.S. 673 (1879).

17. Congress’ authority to coin money is established in U.S. CONST. ART. I §, 10, cl. 1. The United States Mint is established pursuant to 31 U.S.C. § 304, which provides in subsection (a) that, “The United States Mint is a bureau in the Department of the Treasury.” 31 U.S.C. § 304 (2012).

18. *Banknote*, BLACK’S LAW DICTIONARY, 174 (10th ed. 2014).

19. Since legal tender only refers to U.S. government-issued money, the reference to foreign or non-U.S. currency as legal tender, even if designating it as that of a foreign power, is incorrect. U.S. CONST. ART. I § 8, cl. 5 gives Congress authority to set the value of foreign money. Pursuant to 31 U.S.C. § 5151(b), the value of coins of a foreign country expressed in United States money is the value of the pure metal of the standard coin of the foreign country.

20. FinCENa, *supra* note 5. The previously defined term of virtual currency can be simply reduced to its ability to conduct transactions for goods and services within a community. Community was not directly defined with a numeric concept, the virtual currencies function is of critical importance.

21. James B. Thayer, *Legal Tender*, 1 HARV. L. REV. 73, 73 (1887) (stating that “[p]rovisions corresponding to these are found in Art. 9, Sects. 4 and 5, of the Articles of Confederation; and the language there used accounts in part for that of the Constitution. The clauses above quoted originally stood, in Pinckney’s Plan of a Federal Constitution.”).

22. Although the terms virtual and digital are sometimes used interchangeably, we believe that the term “virtual” is superior to the term “digital” especially when describing this “alternative currency.” Digital implies an association with a binary sequence or a limitation by some mechanism whereas virtual is a more complex and fluid description associated with technologies both in current use and not yet in use.

## II. COINAGE, PRINTING AND GENERATION OF FINANCIAL INSTRUMENTS USED AS CURRENCY

Financial regulation is most effectively performed by governments,<sup>23</sup> traditionally by coining and printing national monetary instruments to be used as common currency.<sup>24</sup> It has been so since antiquity. The first coins may be traced to Asia Minor<sup>25</sup> and the Lydian civilization in about 700 B.C.E.<sup>26</sup> and paper money has been found in early civilizations (*e.g.*, Chinese, Egyptians, India, and Scythia).<sup>27</sup> The first instances of paper money can be attributed to the Tang Dynasty (617–907 B.C.E.).<sup>28</sup> This is not surprising as the Western Zhou Dynasty (1100–771 B.C.E.) most certainly had developed the first accounting ledgers.<sup>29</sup> This system was developed by the government to account for taxation, land ownership, and agricultural production.<sup>30</sup> This was known as *jingtian* or “well-field.”<sup>31</sup>

Since then, there have been many permutations of currency and money. According to Benjamin Franklin, money is an idea and not something tangible.<sup>32</sup> When the American colonies were still in their infancy, gold and silver British coins were the legal tender<sup>33</sup> as the colonists were subjects of the British Crown.<sup>34</sup> Coinage was purposely kept in short supply by the British Government<sup>35</sup> to control and extract money from the colonies.<sup>36</sup> Franklin

23. Williamson, *supra* note 6.

24. Hart, *supra* note 6.

25. Robert A. Mundell, *The Birth of Coinage*, COLUMBIA U. at 2 (Dep’t of Econ. Discussion Paper Series #:0102-08) (Feb. 2002) [hereinafter Mundell].

26. *Id.* at 14.

27. *Id.* at 13.

28. Niv Horesh, *From Chengdu to Stockholm: A Comparative Study of the Emergence of Paper Money in East and West*, 4 *PROVINCIAL CHINA* 68 (2012) [hereinafter Horesh]. In the Tang Dynasty, “paper scrip” created by the “counting houses” (*guifang*) became the financial medium of exchange known as “flying cash” (*feigian*). *Id.* at 68–69. These practices later became a large scale paper money system backed by the Northern Song (960–1127 C.E.) government when war led to a copper shortage which was a very important metal for making coin currency. *Id.* at 69; *see also*, Endymion P. Wilkinson, *THE HISTORY OF IMPERIAL CHINA: A RESEARCH GUIDE* (1973) [hereinafter Wilkinson]. The *Tanglü shuyi* of 737, “Tang Code with Commentary,” laid the foundation for a majority of eastern Asian penal statutes. *Id.* at 129. While penal codes existed prior to the Tang Dynasty, their contexts cannot be fully comprehended as they are incomplete and fragmented. *Id.* at 130–31.

29. Maxwell Aiken & Wei Lu, *The Evolution of Bookkeeping in China: Integrating Historical Trends with Western Influences*, 34 *ABACUS* 220 (1998) [hereinafter Aiken].

30. Hong Yang & Xiohe Zhang, *Economy and Trade* (in *Facts About China* (Xiao-Bin Ji, ed.)), The H.W. Wilson Co.: NY (2003) at 257–258. These authors place the Zhou Dynasty between 1045–221 B.C.E. *Id.* at 257 [hereinafter Yang].

31. *Id.* at 257.

32. Thomas Levenson, *Benjamin Franklin’s Greatest Invention*, *AM. HISTORY* 1, 26 (2010) <http://hdl.handle.net/1721.1/69938> [hereinafter Levenson].

33. *Id.* at 27.

34. *See id.* at 28 (discussing currency in the colonies during British rule).

35. Daniele Besomi, *Paper Money and National Distress: William Hauskisson and the Early Theories of Credit Speculation and Crises*, 17 *EUR. J. OF THE HIST. OF ECON. THOUGHT* 49 (2010) [hereinafter Besomi]. Although it is true that, by default, the British purposely kept coinage from the colonies, it was largely due to the pound sterling being readily converted from paper note to silver. *Id.* This becomes clear when, in 1787, “the pound sterling was declared to be inconvertible.” *Id.* Furthermore, a formal report was presented to the British government in 1810 in which it speculated that trade credit is largely responsible for the diminished value of the pound sterling. *Id.* at 54, 60. “The business of a merchant is to buy cheap and sell dear. His

knew these American colonies needed more money in circulation to further trade as well as opportunities for economic growth.<sup>37</sup> Thus he postulated<sup>38</sup> that a paper “promise” authorized by a government, such as a Commonwealth, could make up for the shortage of coins.<sup>39</sup> A Commonwealth would issue and be responsible for this paper currency and thus not have the problems associated with the demand for instant convertibility into precious metals such

general wish is to be able, for this purpose, to command as large a credit as possible. He must consequently, upon abstract principle, be favourable to any system which is likely to give facility to the discount of commercial securities. His interest, therefore, appears to be the same as that of the banker; whose profit increases with the extension of such discounts (Huskisson 1810: 141–44).” *Id.* Moreover, Mr. Huskisson became the Joint Secretary to the Treasury of England in 1804, a post he would later resume from 1807 to 1809. *Id.* at 52. At first, Mr. Huskisson’s economic philosophies, as applied to England, hold little impact on the newly established government of the United States of America, except that Mr. Huskisson was educated in France where he met Benjamin Franklin and Thomas Jefferson. *Id.* at 51. Thus, in some fashion, we can assume that these lessons helped shape his financial ideology.

36. Joseph A. Ernst, *Genesis of the Currency Act of 1764: Virginia Paper Money and the Protection of British Investments*, 22 THE WM. & MARY Q. 33 (1965) [hereinafter Ernst]. The primary method to protect British investments was to mandate the colonists to only provide payments for goods and services in pound sterling. *Id.* at 33. This was in accordance with the Currency Act of 1764, which was rooted in the Currency Act of 1751. *Id.* If Virginia was not defaulting on its debts by 1754, creditors, mostly British merchants, would not have to seek a resolution. *Id.* at 34. As Virginia currency was subject to exchange with the pound sterling, as it was issued by the colonial government of Virginia, the exchange rate could significantly fluctuate: Going from 30 in April 1755 to 65 in April 1764 per pound sterling. *Id.* at 46. Moreover, political corruption—Mr. Robinson, the Treasurer of Virginia, stole ~£100,000 in notes that had been redeemed from the Virginia Treasury between 1755–1763 aimed for destruction and removal from the currency as these were being replaced by new issues—further eroding the faith in value of Virginia currency. *Id.* at 50; *see also* Levenson, *supra* note 32. As legal tender helps facilitate trade, the lack or shortage thereof creates a vacuum whereby other financial instruments, including common tender, are created. Moreover, bartering can become prohibitive when buyers and sellers are trying to move larger amounts of goods; *see also*, Edwin J. Perkins, *Counterfeiting Views on Fiat Currency: Britain and its North American Colonies in the Eighteenth Century*, 33 BUS. HISTORY 8 (1991) [hereinafter Perkins]. In fact, it was the previous bad experiences with fiat currency that was the basis for the primary objectives of the British government. *Id.* at 10. The stoppage of all payments on notes by England’s Exchequer in 1672 resulted in the default of ~£1.3 to £2.25 million; and France’s issuance of fiat currency under King Louis XV in 1716 and its subsequent failure in 1720 was promulgated by the Scotsman John Law. *Id.* at 11. These issuances quickly eroded the national economy through accelerated depreciation of currency being attributed to over-issuances of notes and the inability for these notes to be converted into specie or alternative assets. *Id.* at 9–10. Furthermore, Parliament did make exceptions to the Currency Act of 1764: Pennsylvania and New York; and subsequently amended this act in 1773 allowing fiat currency in the colonies. *Id.* at 22. The primary motive behind this series of Currency Acts was to stabilize the volatile colonial currency exchanges. *Id.* at 21; *see also* Jack P. Greene & Richard M. Jellison, *The Currency Act of 1764 in Imperial-Colonial Relations, 1764–1776*, 18 THE WM. & MARY Q. 485 (1961) [hereinafter Greene]. Conceivably, the 1773 amendment to the Currency Act of 1764 negates, or at least significantly diminishes, the colonial argument concerning their ability to regulate and print colonial notes and currencies. *Id.*

37. Levenson, *supra* note 32, at 29.

38. Although Benjamin Franklin, by some accounts, is credited with inventing paper currency (Levenson, *supra* note 32 at 28), he was actually a spirited advocate for the colonial, and later the Federal government, paper currency. As previously discussed (*see* Mundell, *supra* note 25), paper currency preceded Mr. Franklin by about 1,000 years; *see also*, Shahriar Tavakol, *Digital Value Units, Electronic Commerce and International Trade: An Obituary for State Sovereignty Over National Markets*, 17 J. MARSHALL J. COMPUTER & INFO. L. 1197 (1999) [hereinafter Tavakol]. According to Aristotle, “[m]oney has been introduced by convention as a kind of substitute for a need or demand, and . . . its value is derived not from nature but law and can be altered or abolished at will.” *Id.* at 1203.

39. Levenson, *supra* note 32 at 29; *see* Hiram Price, *The State Bank of Iowa*, 1893 ANNUAL OF IOWA 266, 277 (1893) [hereinafter Price]. “It is certainly not fair to quote Dr. Franklin as favoring irredeemable, fiat money at this day, when one of his chief reasons, and the one on which all his others are based, for the issuance of that kind of paper promises, is that this country at that time produced no gold or silver, and was entirely, and was entirely dependent on foreign countries for coin money.” *Id.* at 278.

as the pound sterling. Moreover, this concept would foster and facilitate trade.<sup>40</sup>

In 1690,<sup>41</sup> Massachusetts<sup>42</sup> began issuing the first government-sanctioned paper notes in the colonies.<sup>43</sup> Consequently, too much money was eventually printed and the notes began to lose value against coins.<sup>44</sup> Similarly, in 1723 a crisis in Pennsylvania required a reliable supply of cash and in 1729 the legislature finally decided to print £15,000 of paper notes which were backed by land and houses<sup>45</sup> to ensure their value. In addition to government issued notes, colonists could acquire notes from banks in the form of loans.<sup>46</sup> The terms of such loans required the borrower to request from £25 to £100 in colonial paper with a repayment from 3% to 12.5% interest rate over eight to twelve years.<sup>47</sup>

Subsequently, due to the scarcity of coins,<sup>48</sup> an increased need for alternative forms of payment, such as paper currency, arose.<sup>49</sup> The paper currency debate in early American history was intense and spirited according to Hiram Price:

All profound thinkers on questions of money or finance, from the days of Alexander Hamilton to the present, no matter how widely they may have differed as to details, have been in accord as to the wisdom of so framing our financial system that all grades of society should be equally benefited and protected. Equal rights to all and exclusive privileges to none, has been inscribed upon all banners of all parties. ‘Money,’ says Hamilton, ‘is with propriety considered as a vital principle of the body politic, and enables it to perform its essential functions.’ James Madison, in his comments on that clause of the Constitution which prohibits any State in the Union from issuing bills of credit as money, say: ‘The loss which

40. Besomi, *supra* note 32, at 54, (“It is widely agreed that credit *does* [emphasis added] facilitate trade.”).

41. Levenson, *supra* note 32, at 28. In 1682, the only colonial mint, located in Massachusetts, was abolished by order of the Crown. Thus, other foreign coins become critically important in facilitating trade.

42. This is an important date to consider as we found that Massachusetts M.G.L.A. 267–68 has the most stringent criminal penalty for counterfeiting—life in prison. This is further discussed in section VIII.

43. Levenson, *supra* note 32, at 28; see Perkins, *supra* note 36, at 13. The need to pay wages of returning soldiers caused the issuance of “Bills of Credit” which were “tax anticipation notes.” *Id.* at 13–14.

44. Levenson, *supra* note 32 at 31. As the supply of paper currency increased, consumer confidence in the paper notes diminished resulting in the value of the paper to decrease relative to the precious metal coins. After all, paper currency was a conceptual plan in which the promise could be broken. With gold and silver coin, it can be converted based on the value of the metal as a commodity regardless of design, imprint, or issuing authority. Besomi, *supra* note 37 at 49. Inflation can result from, “an excessive issue of paper money.” *Id.* at 31, 50.

45. Levenson, *supra* note 32, at 28. These were treated as secured bank loans in which the borrower had to eventually repay or risk property foreclosure. Moreover, it should be noted that Benjamin Franklin ultimately was awarded the Pennsylvania government contract to print the authorized paper currency. Furthermore, Franklin had secured contracts with Delaware and New Jersey.

46. Perkins, *supra* note 36, at 15.

47. *Id.* at 16.

48. Price, *supra* note 39, at 268. During the 1800s, wealthy Americans hoarded gold and silver coins, including foreign coins. *Id.* Furthermore, stockpiling these coins provided an important opportunity to advance one’s social standing and political aspirations. *Id.* at 268. This may be linked to the ‘shortage’ of coins during the colonial period; see also Levenson, *supra* note 32, at 27; see also Perkins, *supra* note 36, at 11.

49. Price, *supra* note 39 at 269.

America has sustained from the pestilential effect of paper money on the confidence between man and man, and on the morals of the people, and on the character of republican government, constitutes an accumulation of guilt which can be expiated in no other way than by voluntary sacrifice of it.<sup>50</sup>

The same author further says on this subject:

‘The same reasons which show the necessity of denying to the States the power of regulating coin, prove with equal force that they ought not to be at liberty to substitute paper for coin.’ The use of the words ‘paper money,’ by Mr. Madison, is, at this day, a misnomer. The paper issues of to-day are not money, but simply *promises* [alteration in original] to pay money. ‘Money,’ says Locke, ‘differs from uncoined silver in this: that the quality of silver in each piece of money is ascertained by the stamp it bears, which is a public voucher.’ Our lexicons describe money as being ‘stamped metal, generally gold, silver or copper,’ never as paper. Banks and bank paper *create* [alteration in original] no money, but under wise laws for their government, and when properly conducted, are incalculable benefit to the commerce of the Nation, and to all classes of people; and it is very doubtful if the business of the world could be successfully conducted without them. It is safe to say that very few people are aware of the amount of labor performed by banks for little or no compensation. If all the banks in the Nation were closed, and all the people compelled to transact their business without the facilities which they furnish, for thirty days, there would be such a stirring up of the business community as has not been heard of since the firing of the first gun at Fort Sumter.<sup>51</sup>

Private organizations, other than banks,<sup>52</sup> that are not associated with the government can create their own financial instruments.<sup>53</sup> Company-issued ‘common tender,’ whether paper or metal, such as coal scrip is completely regulated by the issuer.<sup>54</sup> While other companies (*e.g.*, mostly in the

50. *Id.* at 273.

51. *Id.* 273–278. This discussion, as retold by Mr. Price in 1893, illustrates the importance of the underpinnings of the “modern” thoughts concerning the transition from bank notes, common tender, foreign coins to a standardized legal tender. Moreover, Mr. Price’s recollection of the “current” legal tender system, subsequent to the Legal Tender Act of 1862, is very similar to the current discussions concerning the movement towards virtual currencies, in consumer faith, legality of issuance, and of regulation. This will become more apparent in later parts of this paper (*i.e.*, Part IV and Part V). Consider this statement by Mr. Price: “If, in the years of the coming future, State banks shall be substituted for the present National Banking System, it will be fortunate for the country if the new banks so established shall be as sound, conservative and reliable as the old State Bank of Iowa.” *Id.* at 293. The Bank of Iowa was established in 1858. *Id.* at 281.

52. *Id.*

53. B.W. Barnard, *The Use of Private Tokens For Money in the United States*, 31 Q. J. OF ECON. 600 (1917) [hereinafter Barnard]. In some cases, these private issuances were tokens. *Id.* at 600. “The early use of the term ‘token’ was to describe counters or jettons issued by traders to serve as small change.” *Id.* at 600; Richard H. Timberlake, *Private Production of Scrip-Money in the Isolated Community*, 19 J. OF MONEY, CREDIT, AND BANKING 437 (1987) [hereinafter Timberlake].

54. Timberlake, *supra* note 53, at 438. In some cases, scrip may be similar to tokens. Barnard, *supra* note 53, at 601. For example, “tradesman’s tokens” were redeemable by the merchant to the bearer of the token, and as such, tokens could circulate as smaller denominations of common tender passing among individuals until redeemed by merchant. *Id.* at 602. Moreover, tokens were used as currencies after 1776 in the colonies. *Id.* at 604. Ironically, most of these metal “coins” were “*coppers struck at Birmingham*

transportation and resources industries) issued scrip, of which coal scrip is perhaps the most well-known.<sup>55</sup> Nevertheless, company scrip became a standard operating practice “. . . in the vicinity of the contributory resources, so were often located in isolated areas with low population densities significantly distant from commercial center.”<sup>56</sup> Moreover, scrip circulated within the community where it was issued; and, in some instances, scrip could be exchanged in other regions.<sup>57</sup> Scrip was not just confined to the United States; it was also found in Scotland and in Britain.<sup>58</sup> Despite its wide use, scrip failed because it was not a true store of value as it was contingent upon company’s continued operations.<sup>59</sup>

Although the norm, financial transactions do not have to be made from metal or paper.<sup>60</sup> In 1931, a failed bank in the city of Tenino caused a critical shortage of United States Dollars, the legal tender used to facilitate trade, which subsequently caused a major disruption in financial transactions to the point where an innovative solution was developed.<sup>61</sup> This solution was the establishment and creation of wooden scrip to be used as common currency.<sup>62</sup> The wooden currency represented a portion (approximately 25%) of the validated financial deposits on record at the failed bank.<sup>63</sup> As the bank slowly liquidated its assets and declared liquidating dividends, some Tenino currency was redeemed based upon claims previously assigned to the Tenino Chamber of Commerce.<sup>64</sup>

As innovative as company scrip<sup>65</sup> and the wooden currency in Tenino,<sup>66</sup> virtual currency has emerged as a financial instrument that may be used as a common tender.<sup>67</sup> Similar to coins and paper currencies, the creation of virtual

[England] in 1783, 1785, and 1786 . . .” *Id.* at 604. This practice continued until the United States Mint was fully operational and was able for currency. *Id.* at 608. This importation of token or “alternate currency” may have contributed to the rapid depreciation of fiat money after 1776. Perkins, *supra* note 36, at 23. Furthermore, casino chips can be equated to tokens.

55. Timberlake, *supra* note 53, at 439.

56. *Id.*

57. *Id.* at 443.

58. Elaine Tan, *Scrip as Private Money, Monetary Monopoly, and the Rent-Seeking State in Britain*, 64 *ECON. HIST. REV.* 237 (2011) [hereinafter Tan]. The use of scrip and the credit system (known as the Truck System) was prohibited by the British Parliamentary 1831 Truck Act. *Id.* at 238. This law mandated that workers must be compensated in legal tender. *Id.* at 240. Moreover, the Truck Act represents the consolidated effort to ban the issuance of private money since at least 1411. *Id.* at 242. Private issuances were finally prohibited by the 1844 and 1845 Bank Acts. *Id.* at 244. It should be noted that the primary author of the Truck Act was none other than the same Mr. Huskisson whom was introduced to Dr. Franklin and Mr. Jefferson. Besomi, *supra* note 35, at 51. Ironically, Mr. Huskisson would never see the Truck Act come to fruition as “[h]e died in 1830 as the first victim of a railways accident at the inauguration of the Liverpool–Manchester line.” *Id.* at 52.

59. Timberlake, *supra* note 53, at 439.

60. 75 *CONG. REC.* 7665 (1932); Howard H. Preston, *The Wooden Money of Tenino*, 47 *Q. J. OF ECON.* 343 (1933) [hereinafter Preston].

61. Preston, *supra* note 60, at 343.

62. *Id.* at 344.

63. *Id.*

64. *Id.*

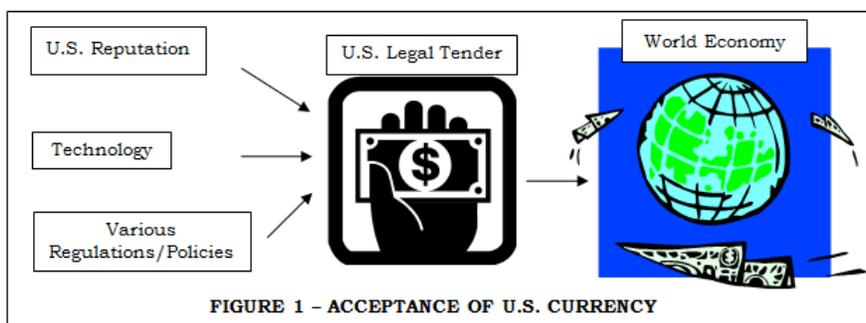
65. See generally Timberlake, *supra* note 53 (discussing the innovative nature of company scrip).

66. See generally Preston, *supra* note 60 (illustrating the history and circumstances in which wooden currency emerged in Tenino).

67. Timberlake, *supra* note 53, at 440.

currency is contingent upon available technology and it can be subject to unauthorized replication.<sup>68</sup> Additionally, the supply of virtual currency must be able to meet the similar consumer expectations and demands of traditional currencies.<sup>69</sup>

First Virtual Bank offered virtual currency accounts in 1994.<sup>70</sup> More recently, transactions using virtual currency transfer a representative unit, or fraction of a unit, from peer-to-peer simply by modifying the owner of record.<sup>71</sup> Virtual currency should not be confused with transactions using a *Brokered Monetary Value*<sup>72</sup> (“BMV”) to facilitate trade as the primary function of a BMV is to safeguard the traders’ account details; and therefore, BMVs are not true concepts of virtual currency.<sup>73</sup> Thus, we have limited our discussions on BMV’s.<sup>74</sup>



Normally, currency is central to trade as seen in the figure above. Central to this figure is United States Legal Tender, which feeds into the world currency.<sup>75</sup> Contingent on the acceptance of United States currency, three

68. Williamson, *supra* note 6, at 55.

69. *Id.*

70. *Bye-Bye Credit Cards, Hello Digital Money*, 127 USA TODAY MAGAZINE (Jan. 1999), at 8.

71. See generally Williamson, *supra* note 6 (discussing the transfer of virtual currency).

72. *Brokered Monetary Value* (“BMV”) are third-party agents that act as financial intermediaries to facilitate in the exchange of products and services for currency. An example of a third-party agent is PayPal. Stephen F. Quinn & William Roberds, *Are On-Line Currencies Virtual Banknotes?*, FED. RES. BANK OF ATLANTA ECON. REV. 1, 10 (2003) [hereinafter Quinn]. PayPal, according to many State Laws, is actually a money transmitter. *Id.* at 11. EUROPEAN CENTRAL BANK, VIRTUAL CURRENCY SCHEMES, 17 (2012) [hereinafter ECB]. Braintree Payment Solutions, LLC, is also a BMV owned by PayPal; see BRAINTREE PAYMENT SOLUTIONS, LLC, <https://www.braintreepayments.com/> (last visited November 9, 2013). Additional BMVs include AUTHORIZE.NET, <http://www.authorize.net> (last visited Nov. 9, 2013) (owned by VISA); see also DWOLLA, <https://www.dwolla.com> (last visited Nov. 9, 2013); see also WEPAY, <https://www.wepay.com> (last visited Nov. 9, 2013). Although there are a number of BMVs, these are just a few that have experienced some success in virtual currency transfers.

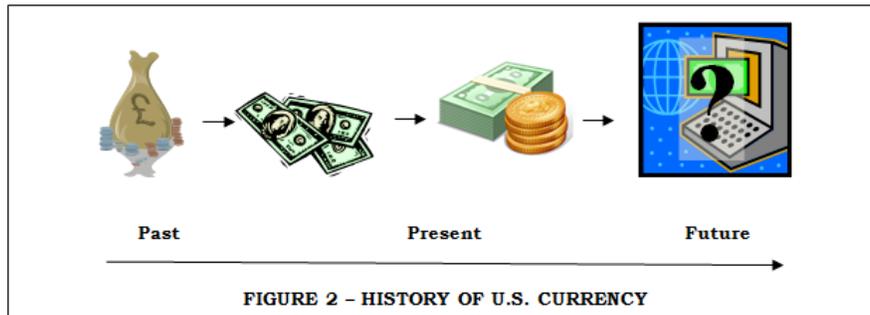
73. Bruce Champ, *Private Money in Our Past, Present and Future*, FED. RES. BANK OF CLEVELAND ECON. COMMENT. (Jan. 2007), at 1, 2 [hereinafter Champ, *Private Money*].

74. Brokered Monetary Values would not necessarily be covered under counterfeiting as applied to currency replication and thus to generalize Brokered Monetary Values as such would be erroneous.

75. Ruth Judson & Richard Porter, *Estimating the Value of Counterfeiting U.S. Currency in Circulation Worldwide: Data and Extrapolation*, FED. RES. BANK OF CHI. POL’Y DISCUSSION SERIES, 1 (2010). [hereinafter Judson]. “Cash U.S. dollars are used widely overseas.” *Id.* at 5. In fact, U.S. currency is used in

factors contribute to the value of this tender: United States reputation,<sup>76</sup> technology,<sup>77</sup> and various regulations and policies.<sup>78</sup>

However, when the value of currency is debatable,<sup>79</sup> the willingness of individuals to engage in trade and accept less widely employed or potentially fraudulent financial instruments diminishes.<sup>80</sup>



The figure above traces the evolutionary path that this currency media has travelled.<sup>81</sup> As presented earlier in Part II, colonial currency included British coins as well as foreign coins. Due to a shortage of precious metals, coins gave way to various forms of paper currencies being issued by Commonwealths, banks, and other institutions.<sup>82</sup> This is depicted as the first figure under the past history of U.S. Currency.

In 1832, President Andrew Jackson was re-elected and refused to renew the charter the Second Bank of the United States. Congress then enacted legislation that the government's funds would be held by local banks instead of

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some nations as domestic currency. *Id.* at 6.

76. Tan, *supra* note 58, at 252. As noted in early colonial times, reputation can significantly impact trade to the point that merchants and suppliers of good demand an alternative form of payment. *Id.* This would also be applicable in today's global economy: If the consideration for goods and services is not satisfactory to the supplier, then the supplier can seek alternative markets to deliver those goods and services. In fact, with the advances in technology, communications, and transportation, it would be most likely that a supplier would just as easily locate a new market for the same goods and services then to engage in trade that may be detrimental to their organization.

77. Judson, *supra* note 75, at 17 (explaining that technology includes the countermeasures to combat counterfeiting and to identify actual U.S. currency which is subsequently discussed).

78. Tavakol, *supra* note 38, at 1203, ("Since money is a creature of law, the nature of foreign currency must be determined in accordance with the law of the foreign country that issues such currency.") *Id.*; see also Stephen S. Cohen & John Zysman, *Countertrade, Offsets, Barter, and Buybacks: A Crisis in the Making*, 28 CAL. MGMT. REV. 41 (1986) [hereinafter Cohen].

79. Tavakol, *supra* note 38, at 1220. Debatable can also include instances where the value of currency, in relationship to other currencies, fluctuates widely and frequently. *Id.* Users of currency tend to avoid holding currency very long if the market is volatile. Moreover, the value of currency can shift according to monetary supply: The greater supply of money, the lower the value. *Id.* at 1221.

80. Timberlake, *supra* note 53, at 443.

81. Cohen, *supra* note 78. This figure excludes countertrades, offsets, barters, and buybacks as these transactions could be applied to past, present, and future trades. *Id.* at 41.

82. Alan D. Watson, *Counterfeiting in Colonial North Carolina: A Reassessment*, 79 N.C. HISTORICAL REV. 182, 183 (2002).

a centralized bank.<sup>83</sup>

This meant that banks could issue notes on the condition that designated securities, placed on deposit with state regulatory authorities, backed them. In general, state authorities directed the printing and registering of bank notes and issued them to banks in amounts equal to the securities deposited. Free banks had to redeem their notes at par (face value) for specie (coins minted by the U.S. Treasury) on demand, otherwise the state would close the bank.

During this era, many different bank notes were circulating, making the ability to determine which notes were valid and sound, and which were risky, necessary for transactions to occur. As a result, bank note reporters—newspapers that, like today’s financial pages, listed which bank notes were valid and what their market values were—were published and used as guides for bank note acceptance.<sup>84</sup>

Those days were long before the advent of cellular telephones and the ability to instantly post information to social media on the internet. The task of bank note reporters to track the various types of paper money being printed by banks was daunting, and ultimately, futile:

With minimum regulation, a proliferation of 1,600 local state-chartered, private banks now issued paper money. State bank notes, with over 30,000 varieties of color and design, were easily counterfeited. That, along with bank failures, caused confusion and circulation problems.<sup>85</sup>

This situation continued almost unabated until Congress passed the “Legal Tender Act” in 1862, authorizing the minting of paper money not redeemable in gold or silver.<sup>86</sup> This ended the long-standing policy of using only gold or silver in transactions, and it allowed the government to finance the enormously costly Civil War long after its gold and silver reserves were depleted.<sup>87</sup> The Legal Tender Act allowed the government to print \$150 million in paper money that was not backed by a similar amount of gold and silver.<sup>88</sup>

After the Civil War, or “War of the Rebellion,” Congress, in 1878, authorized the recirculation of these notes, and its authority to do so was affirmed by the United States Supreme Court.<sup>89</sup> The Court said that the United States Constitution gave Congress the power to make the treasury notes of the

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83. Rob Wile, *The Crazy Story of the Time When Almost Anyone in America Could Issue Their Own Currency*, BUS. INSIDER (Feb. 11, 2013, 9:13 PM), <http://www.businessinsider.com/history-of-the-free-bank-era-2013-2>.

84. Adam M. Zaretsky, *Will that Be . . . Cash, Check, Charge or Smart Card?*, REG’L ECONOMIST (Apr. 1996) at 8.

85. Ron Pfister, *The History of U.S. Paper Money*, RON’S CURRENCY, STOCKS & BONDS, <http://www.ronscurrency.com/rhist.htm> (last visited Aug. 22, 2015).

86. Philip W. Newcomer, *The Illegality of Legal Tender*, THE FREEMAN (Dec. 1, 1986), <http://fee.org/freeman/the-illegality-of-legal-tender>.

87. *Id.*

88. *Id.*

89. *Juilliard v. Greenman (Legal Tender Case)*, 110 U.S. 421, 426–27, 449–50 (1884).

United States legal tender in payment of private debts in time of peace as well as in time of war.<sup>90</sup>

Although the case settled the narrow question of whether the reissued United States paper notes could be used by a citizen of Connecticut to pay a citizen of New York for 100 bales of cotton, it coupled with other “Legal Tender Cases” had a much wider ranging impact. It legitimized as “legal tender” the notes of the United States government as payment of debts even when recirculated.<sup>91</sup> In effect, those notes were not used as *replacement* for the equivalent value in gold; they were used as a *representation* of that value.

As financial transactions have moved away from the transfer of coins and paper with the merchant towards the electronic transmission of representative cash, the future of United States currency may well yield to electronic representation of value stored as virtual dollars or its equivalent. Historically, societies have continuously sought to improve “money” to protect its value and its functionality.

In this Part II, we have briefly presented a historical overview of coinage, printing and the generation of financial instruments. While there are many other examples of legal tender in the United States and also of issues of common tenders, the examples presented offer a diverse flavor of currencies. In either case, the value of currency becomes uncertain where financial instruments have been counterfeited.<sup>92</sup> Counterfeiting currency devalues the financial instruments by erroneously increasing the supply of the currency.<sup>93</sup> Counterfeiting has been used as a method for countries to wage economic war<sup>94</sup> and for individuals to unjustly enrich themselves.<sup>95</sup> To protect the value and stability of economic markets, many governments specifically regulate financial instruments used as currency.<sup>96</sup> This regulation includes measures to combat, deter, and detect counterfeiting.<sup>97</sup> We define *counterfeiting* as the replication of a financial instrument used to obtain goods and/or services under false pretenses or to influence the value or acceptance of a currency.<sup>98</sup> To understand the motive behind counterfeiting, one must consider the nature of both currency and virtual currency.

### III. A GENERAL OVERVIEW OF CURRENCY AND VIRTUAL CURRENCY

If it is a fact that money is the “life blood of trade and the wings of commerce,” then it follows as a consequence that the volume of money, or bank bills representing and redeemable in money (and no

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90. *Id.* at 449–50.

91. *Id.*

92. Watson, *supra* note 82, at 187.

93. *Id.* at 188–89.

94. Champ, *Private Money*, *supra* note 73.

95. Louise I. Shelley, *The Diverse Facilitators of Counterfeiting: A Regional Perspective*, 66 J. INT’L AFFAIRS 19 (2012).

96. William A. Lovett, *The Revolution in U.S. Banking*, 27 CHALLENGE 41 (1984); Bruce Champ, *Stamp Scrip: Money People Paid to Use*, ECON. COMMENTARY (Apr. 2008) [hereinafter Champ, *Stamp Scrip*].

97. Lovett, *supra* note 96.

98. Williamson, *supra* note 6; Shelley, *supra* note 95.

other bank bills should be allowed), is an important factor in determining the condition of the financial health of a nation, and consequently of every State in the Nation.<sup>99</sup>

Hard currency, that is coins and paper, is traditionally associated with a geographic area such as a region, State, or country; and as such, must be physically moved from one location to another.<sup>100</sup> Furthermore, most laws regulating currency are linked to the geographic location<sup>101</sup> of the buyers or senders and the sellers or receivers.<sup>102</sup>

Additionally, hard currency can be categorized by its liquidity—the ability and speed at which an asset can be converted into cash on hand, the most liquid state—into two classifications (*i.e.*, M1 and M2) in the United States.<sup>103</sup>

The most liquid state is M1, which is composed of cash on hand<sup>104</sup> while M2 consists of M1 plus savings accounts.<sup>105</sup> Prior to 2006, M3 consisting of M2 and by default M1 plus long-term investments and deposits exceeding \$10,000 was an additional category of classification.<sup>106</sup> Considering that hard currency is categorized in economic terms based on each user's ability to first gain access to it and then to utilize it, then so too should virtual currency use the same definitions.<sup>107</sup> However, there are significant distinctions between tangible currencies and virtual currencies.

According to FinCEN,<sup>108</sup>

In contrast to real currency, “virtual” currency is a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency. In particular, virtual currency does not have legal tender status in any jurisdiction. This guidance addresses “convertible” virtual currency. This type of virtual currency either has an equivalent value in real currency, or acts as a substitute for real currency.

Thus, a virtual currency is a medium of exchange for goods and services both tangible and intangible.<sup>109</sup> This is an important distinction as some virtual

99. Price, *supra* note 39, at 287.

100. Tavakol, *supra* note 38, at 1205.

101. See S.E.C. v. Prater, 2005 WL 2585269, at \*5 (D. Conn. Aug. 24, 2005) (applying the Securities Act of 1933 and the Securities Exchange Act of 1934).

102. Tavakol, *supra* note 38, at 1222.

103. R. Glenn Hubbard & Anthony P. O'Brien, *MACROECONOMICS* 460–62 (4th ed. 2013).

104. *Id.* at 460. (“M1 The narrowest definition of the money supply: The sum of currency in circulation, checking account deposits in banks, and holdings of traveler’s checks.”) *Id.* It should be noted that “Before 1980, U.S. law prohibited banks from paying interest on checking account deposits.” *Id.* at 462. Thus, M1 currency is fundamentally assets that are expected to be consumed in the short term—less than twelve months.

105. *Id.* at 462. (“M2 A broader definition of the money supply: It includes M1 plus savings account balances, small denomination time deposits (short-term (*i.e.*, less than twelve months) certificates of deposit), balances in money market deposit accounts in banks, and non-institutional money market fund shares.”) *Id.*

106. *Discontinuance of M3*, Fed. Reserve Statistical Release, <http://www.federalreserve.gov/Releases/h6/discm3.htm> (Mar. 9, 2006) (Noting that the computation and estimation of M3 ended on or about March 23, 2006). *Id.* Moreover, this illustrates that the way “we” view currency does indeed change according to its utility to the consumer.

107. GLENN P. HUBBARD & ANTHONY P. O'BRIEN, *MACROECONOMICS* 460–62 (4TH ED. 2013).

108. FinCENa, *supra* note 5.

109. Audrey Guinchard, *Crime in Virtual Worlds: The Limits of Criminal Law*, 24 INT'L REVIEW OF

currencies do not meet this definition.<sup>110</sup> For example, virtual currencies which are part of massive multiplayer online games (MMOG)<sup>111</sup> are not considered true virtual currencies as these are virtual currencies are intended to be used entirely within the confines of the game.<sup>112</sup> Although some virtual currencies for these MMOG can be purchased from selected exchanges<sup>113</sup> or other players, the virtual currency cannot be used to purchase goods and services outside of the MMOG; and therefore, is not regulated by FinCEN.<sup>114</sup>

Currency needs to be easily transportable, widely accepted and hold its value.<sup>115</sup> Counterfeiting diminishes acceptability and reduces the value of a

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LAW, COMPUTERS & TECH. 175 (2010) [hereinafter Guinchard]. Virtual currency should be exchangeable for goods and services both virtual and “real” currencies as well as exchangeable to other currencies. *Id.*

110. Tavakol, *supra* note 38, at 1199. Virtual currency would also include e-money, e-cash, and Digital Value Units (DVU). *Id.* at 1199, 1204. Moreover, minor distinctions are made between the types of virtual currency. *Id.* at 1204. “E-money is the general term for tokens of monetary value that takes digital form.” *Id.* “E-cash, as the replacement for banknotes and coins, is e-money for small transactions. Finally, DVUs are the basic units of denominations of e-money and e-cash.” *Id.*; see also, Ralph E. McKinney, Jr., Lawrence P. Shao & Dale H. Shao, *Can Digital Worlds Simulate Reality? Using Virtual Reality as an Education Tool*, 11 INT’L JOURNAL OF BUS. RESEARCH 157 (2011) [hereinafter McKinney].

111. McKinney, *supra* note 110. Massive Multiplayer Online Games (MMOG) are internet-based video games with a greater emphasis on interactions among players. *Id.* at 160. In fact, this social interaction is a critical attraction to the gaming platform which can sometimes create distinct followings associated with the game. *Id.* at 157. Some examples of MMOG include World of Warcraft by Blizzard Entertainment, Runescape by Jagex Ltd., as well as many others. *Id.* at 161. MMOG are classified as *closed virtual currency schemes* as there is no true legitimate connection for conversion to the economy ECB. *Id.* at 13. The next classification is contingent on the convertibility of virtual currency (unidirectional or bidirectional) into legal tenders such as the United States Dollar, the Euro and the Yen. *Id.* at 14. Unidirectional is the flow from the legal tender into a virtual currency that may be redeemed for some virtual goods or services. *Id.* at 14. Examples of Unidirectional virtual currency schemes are Facebook Credits and Nintendo Points. *Id.* In the case of bidirectional virtual currency schemes, the conversion can be from legal tender into virtual currency and then back to legal tender. *Id.* Examples of these currencies are Bitcoins, Litecoins and Peercoins. It is the bidirectional virtual currency schemes that are the primary focus of this paper.

112. McKinney, *supra* note 110.

113. McKinney, *supra* note 110. An example of a selected exchange is eBay. Moreover, individuals may purchase these currencies from other players. *Id.* at 162.

114. Stacey L. Schreft, *Clicking with Dollars: How Consumers Can Pay for Purchases from E-Tailers*, 2002 ECON. REVIEW 37 [hereinafter Schreft]. Ms. Schreft states “[t]he term ‘deposit’ refers to claims of monetary value” which solidifies the fact that MMOG currencies are contained within the gaming environment without any claims for “real currency.” *Id.* at 39. Furthermore, she presents that internet purchases using such methods as credit cards, debit cards, and electronic checks are in fact only remote purchases where trade is facilitated and is backed by “real currency.” *Id.* at 46; Rónán Kennedy, *Virtual Rights? Property in Online Game Objects and Characters*, 17 INFO. & COMM’N TECH. LAW 95 (2008) [hereinafter Kennedy]. Moreover, “MMORPG (massive multiplayer online games) and VWs (virtual worlds) are developing at a rapid pace, creating new markets and throwing up new legal problems. The artificial creation of scarcity leads to conflicts over resources, trading in virtual property and instances of fraud and theft. Some game developers deal with this by using contract law to outlaw real world trading; others encourage and facilitate it, while denying that this has real world consequences. As the technology develops and becomes more widely used, this argument will not be tenable. An examination of the theoretical foundations of property rights also leads to the conclusion that, with time, the interest of players in property rights will outweigh those of game developers. This challenges traditional notions of intellectual property and authorship, although in a somewhat unfocused way. Nonetheless, it is clear that the phenomenon of online games and real world trading in virtual property is an important element in the accelerating pace of change in intellectual property law.” *Id.* at 104. This is an important notation as our processes are continuously being automated with increased efficiency through technology, with innovation being driven by technology “we” are likely to utilize the “resources” from the same technology to solve ‘our’ problems.

115. See Tavakol, *supra* note 38, at 1200 (noting that DVUs are the smallest measurement or denomination of a virtual currency).

currency.<sup>116</sup> Thus, strong regulations deterring counterfeiting to maintain confidence in the currency are critical.<sup>117</sup> Consequently, do States have regulatory power concerning counterfeiting United States currency, bank notes, and foreign (non-U.S.) currency? Furthermore, can States regulate virtual currencies? From our research, we are the first to address these concerns in such depth while considering every State statute.<sup>118</sup>

As previously mentioned, financial tools such as charge cards act as temporary loans for purchases, but are not considered legal tender.<sup>119</sup> Virtual currency will eventually dominate as the major form of common tender.<sup>120</sup> To become widely accepted as a common tender, certain requirements must be met. The next section discusses basic requirements for virtual currency to become an accepted, and legal, form of legal tender.<sup>121</sup>

#### IV. GENERAL REQUIREMENTS FOR THE WIDESPREAD ACCEPTANCE OF VIRTUAL CURRENCY

As virtual currency is a common tender without the same government regulation and oversight as legal tender, the ability to conduct transactions using virtual currency can be limited.<sup>122</sup> Furthermore, individuals must have faith in the stability of a common tender and that common tender must have a utility that serves the needs in facilitating trades for an individual.<sup>123</sup> Thus, the primary question is how can the concept of virtual currency be realized?

Considering the historical successes, mishaps and failures of previous hard currencies and the distinction that virtual currencies have no true physical substance, we postulate that: (1) A virtual currency must be considered intangible personal property similar to trademarks, copyrights,<sup>124</sup> and patents;<sup>125</sup> (2) Ownership disputes must be subject to a system such as a

116. Watson, *supra* note 82.

117. Guinchard, *supra* note 109. Confidence in the representativeness of a currency, that is, what the conceptual understanding of stated value of the currency is, in fact, the actual value in which users of that currency will recognize. *Id.* at 175. As noted, virtual currencies are conceptual by nature and may be subject to a greater distrust especially since a user of that common tender relies on other users for its value. *Id.* at 176. Moreover, “at the basis of fraud there is a lie and without assurances, especially the ability for one to seek a resolve in a dispute through the court system or other regulatory body or administrative agency, then the likelihood of higher confidence cannot truly be obtained.” *Id.*

118. Judson, *supra* note 75 at 8, “[f]ew papers on counterfeiting . . . .”

119. Schreft, *supra* note 114, at 46.

120. Tavakol, *supra* note 41, at 1199. Virtual currency can reduce transaction fees and may be more convenient for consumers. *Id.* Moreover, this is a natural evolution from metal to paper to virtual currencies. However, our intention is to examine virtual currency in general. Thus, we look at the overall macro concept as defined by FinCEN. FinCENa, *supra* note 5.

121. *Infra* Part IV.

122. Tavakol, *supra* note 38.

123. Guinchard, *supra* note 109.

124. Rebecca Tushnet, *Worth a Thousand Words: The Images of Copyright*, 125 HARV. L. REV. 683 (2012) [hereinafter Tushnet]. Copyrights can be difficult to determine as “physical artifacts,” in the cases of books, coins, and so forth, may be held to different standards than digital or virtual representations. *Id.* at 756–57.

125. Julia A. Gladstone, *Exploring the Role of Digital Currency in the Retail Payments System*, 31 NEW ENG. L. REV. 1193 (1997) [hereinafter Gladstone]. Similarly, Gladstone notes that “the original digital denomination can and is intended to be broken into smaller amounts. This divisibility feature sets digital

Judicial Proceeding or Binding Arbitration to resolve property conflicts;<sup>126</sup> and (3) A virtual currency must be subject to similar regulation as other financial instruments (*e.g.*, legal tender, scrip, and credit cards) used in facilitating exchanges.<sup>127</sup> Each is defined subsequently.

First, a virtual currency must be considered a form of intangible personal property.<sup>128</sup> Already the IRS<sup>129</sup> and the U.K.<sup>130</sup> have issued guidelines

currency apart from similar traditional payment instruments.” *Id.* at 1201. Thus, any transferring of virtual currency destroys the original encrypted data stream of value we know potentially as the total represented value of virtual currency contained within a virtual wallet and creates at least two encrypted data streams of value: One for the sender to express the value of virtual currency less the transfer to the receiver whom also obtains an encrypted data stream of value. Hence, unlike traditional forms of payments, this constant creation, destruction, and creation is most similar to intangible personal property as we postulate. *See also* Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691 (2012) [hereinafter Smith, *Property*]. “Property law is a modular system. It helps define what a thing is in the first place and why we should care. It gives content to the notion of a “law of things.” Content is what is lacking in the bundle picture—so lacking that the bundle fails to be a theory of property at all. Instead of positing detachable sticks that directly serve goals like autonomy, privacy, investment, planning, and appropriability according to criteria of efficiency, fairness, and morality, the modular theory of property explains how property law furnishes some basic building blocks of private law. Modular property manages the complexity of human interactions by using exclusionary strategies to treat these interactions as nearly decomposable and by delineating semi-transparent boundaries around complementary clusters of attributes. It then specifies the interface between the modular components of property through governance strategies that make more direct reference to uses and purposes, as in the law of nuisance, covenants, and zoning. This interface also contains the very important equitable safety valves that allow the baselines of property to be simple without being vulnerable to opportunists. In contrast to the bundle-of-rights picture, the modular theory captures how a great number of features of property—ranging from its *in rem* aspect, the right to exclude, and the residual claim, through alienability, persistence, and compatibility, and beyond, to deep aspects like recursion, scalability, and resilience—follow from the modular architecture. The modular platform allows communication with actors near and far in a parsimonious manner. Modular property is neither absolute nor formal across the board, but it helps explain how and when we incur the cost of delineating property rights in a complex world. It furnishes the things that property as a law of things contributes to private law.” *Id.* at 1725–26. Essentially, property rights are not clear and as technology advances, so likely would disputes increase surrounding digital and virtual property protections. *Id.* at 1698. It is in our best interests to define such virtual property as “a platform for the rest of private law.” *Id.* at 1691. However, not everyone agrees with the concept of property law being a “modular system.” *See also* Eric R. Claeys, *Responding to Henry E. Smith, Property as the Law of Things*, 125 HARV. L. REV. 133 (2012) (noting disagreements with Smith); Thomas W. Merrill, *Responding to Henry E. Smith, Property as the Law of Things*, 125 HARV. L. REV. 151 (2012) (noting reservations about whether modularity is an adequate picture of property).

126. *See* Tavakol, *supra* note 38, at 1200 (suggesting that, on an international level, this may be more difficult to accomplish).

127. Quinn, *supra* note 72, at 1. Part of this regulation would be the collection of taxes; *see* Tavakol, *supra* note 38, at 1206.

128. As virtual currency is not associated with real estate, its classification into personal property is more accurate. In addition, virtual currencies are unique in the fact that they are used as currency without any physical representation of currency—only conceptualized and presented in digital form, which cannot be handled outside of an image. Considering that prior coins and notes were also concepts with a physical presentation that could be readily transferred from one hand to the next hand, virtual currencies can only be transmitted via one device to another device. Even though technology has been used as a method to facilitate “hard” currency transactions, in the case of credit and debit cards, virtual currency is unique because the technology cannot be separated from the transactions. The transaction and currency are not independent events but dependent events that are not mutually exclusive.

129. I.R.S. Notice 2014-21 (Mar. 25 2014) [hereinafter Notice 2014-21] (“In general, the sale or exchange of convertible virtual currency, or the use of convertible virtual currency to pay for goods and services in a real-world economy transaction, has tax consequences that may result in a tax liability. This notice addresses only the U.S. federal tax consequences of transactions in, or transactions that use, convertible virtual currency, and the term ‘virtual currency’ as used in Section 4 refers only to convertible virtual currency. No inference should be drawn with respect to virtual currencies not described in this notice.” Moreover, virtual currencies are not considered foreign currencies or currency but property. *Id.* at 2. “For federal tax

classifying virtual currencies as property.<sup>131</sup> This is an important designation as the type of property, based on its tax treatment, aligns virtual currency as “property” similar to stocks, bonds, commodities and futures.<sup>132</sup> Furthermore, intellectual property<sup>133</sup> falls under this personal property definition.<sup>134</sup> It is the intangible (*i.e.*, incorporeal) nature of these virtual assets that are most

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purposes, virtual currency is treated as property. General tax principles applicable to property transactions apply to transactions using virtual currency.” *Id.* Furthermore, these virtual currencies are treated similar to stock and bonds with gains and losses being the taxable event. *Id.* The acquisition of virtual coins through mining also constitutes a taxable event this virtual “property” which is likely a self-employed action provided that the miner does not have an employment relationship. *Id.* If there is an employment relationship, then “Payments made using virtual currency are subject to backup to backup withholding to the same extent as other payments made in property.” *Id.* at 5. Notice 2014-21 was based and builds upon the findings of FinCENa.

130. HM Revenue & Customs, *Revenue and Customs Brief 9 (2014): Bitcoin and Other Cryptocurrencies*, HM REVENUE & CUSTOMS (Mar. 3, 2014), <https://www.gov.uk/government/publications/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies/revenue-and-customs-brief-9-2014-bitcoin-and-other-cryptocurrencies> [hereinafter HMRC] (designating virtual currencies as property which may be subject to taxation. However, this policy notes that the European Union can adjust or other modify this definition of virtual currency and alter its subsequent treatment as property.).

131. Consumer Financial Protection Bureau, *Risks to Consumers Posed by Virtual Currencies*, CONSUMERFINANCE.GOV (Aug. 2014), [http://www.consumerfinance.gov/f/201408\\_cfpb\\_consumer-advisory\\_virtual-currencies.pdf](http://www.consumerfinance.gov/f/201408_cfpb_consumer-advisory_virtual-currencies.pdf) [hereinafter CFPB] (noting that virtual currencies are not covered by the Federal Deposit Insurance Corporation. Additionally, there are significant risks of loss associated with this property that significantly deter the ability to obtain insurance on these “properties.” Other distinct risk characteristics of virtual currencies are its volatility and its relative newness outside of generally smaller user group. This expanded use of virtual currencies has made this “property” highly experimental which programming and encryption issues may yield to transaction problems that give rise to ownership disputes. For example, the loss of a digital wallet, a data wipe, or a cyber attack can destroy any trace of a “claim” for these virtual assets and without a claim, recovery of damages is not assured.).

132. This is an important observation as many conversions and purchases of virtual currency are linked to the speculation of an investment and the ability to acquire greater wealth recognized by the sale of this virtual currency as an investment. Thus, some important questions arise concerning what the practical difference is between an investment and a currency. Although some currencies are sought as an investment, the majority of that currency is circulating, as intended, with the purchase of goods and services. The super speculative investments into some currencies are similar to the call to buy precious metals as noted by Pat Boone’s famously urging of “Don’t wait to buy gold, buy gold and wait” for Swiss America. *How to Protect Yourself from Investment Gold Scams*, SWISS AM. (Oct. 26, 2014) <https://www.swissamerica.com/offer/noscam.php>. This brings into question, is a virtual currency a common tender or an investment similar to a partitioned share in a virtual commodity? We believe that whatever the answer to this question is, the designation of intangible personal property would be applicable to both.

133. See generally ECB, *supra* note 72, at 31 (noting that a significant dispute between the operators of the Second Life virtual currency of Linden Dollars and Ailin Graef arose after changes in the intellectual property rights agreement to which Mrs. Graef could not refuse. Mrs. Graef is significant to virtual currency as she was the first individual to become a millionaire through the conversion of digital assets and enterprises. She was able to accomplish this through exercising her intellectual rights in Second Life.).

134. Although the definition of intellectual property can be used to identify some virtual currencies with respect to creation, the general classification of virtual currencies has been as an intangible personal property. (*E.g.*, Notice 2014-21, *supra* note 129; FinCENa, *supra* note 5; U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-14-496, VIRTUAL CURRENCIES: EMERGING REGULATORY, LAW ENFORCEMENT, AND CONSUMER PROTECTION CHALLENGES (May 2014), [www.gao.gov/assets/670/663678.pdf](http://www.gao.gov/assets/670/663678.pdf) [hereinafter GAO-14-496]; HMRC, *supra* note 130 (noting that virtual currencies must be dissected individually in determining which regulatory agencies can be best matched to those characteristics of that virtual currency. Furthermore, it may be necessary to issue additional guidelines in dealing with virtual currencies as technology is continuously moving it forward. For the purpose of this article, we defer to the general definition that virtual currency in its current state and in its expected future state will fit the definition of an intangible personal property. Further classification may occur but only after the emergence and widespread use of multiple virtual currencies. We anticipate this system to primary rank and classify the virtual currencies with respect to their performance against each other similar to the rankings of various stocks and bonds.).

important. Virtual currency, unlike stocks and bonds,<sup>135</sup> can be permanently lost, mislaid, and abandoned.<sup>136</sup> As with any property, individuals will assert their “rights” to that property—legitimate or otherwise. Therefore, it is essential to have methods for those property rights to be scrutinized and decided.

Second, disputes must be resolved through a formal mechanism<sup>137</sup> that both is legitimately recognized to render decisions and has the ability to enforce or facilitate the enforcement of those judgements.<sup>138</sup> This formal mechanism first needs to identify common terminology and issues concerning transactions.<sup>139</sup> These can very well be adopted from current laws concerning

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135. Based upon the guidelines issued by Notice 2014-21 and HMRC, the stocks and bonds are the most similar property identified to virtual currencies by governments. Notice 2014-21, *supra* note 129; HMRC, *supra* note 130.

136. For personal property, the terms *lost*, *mislaid*, and *abandoned* have significant meaning. Personal property that is lost or mislaid can eventually be found by someone. The same is said about abandoned property is that someone can find it and lay claim to it. These distinctions between lost, mislaid, and abandon concern the owners intent with the property—to retain or not to retain. However, it is not the owner’s intent that we focus on, but the virtual currency’s ability as designated as personal property to be *found* and *claimed*. In fact, stock and bonds can be “located” even if the owner is not designated. Consequently, virtual currency is not that simple and may be more complex considering that some virtual currencies are decentralized and anonyms. As a result, certain “blocks” or sequences of virtual currency (similar to the serial numbers on United States currency notes) can be identified. But, the reissuances of many of these virtual currencies cannot necessarily occur because of the finite properties built into virtual currencies to protect from over issuance. If virtual currencies were limitless, then everyone could conceivably acquire infinite wealth, which by default, would devalue the entire currency similar to the incidents of hyperinflation with the German Mark (*Deutsche Mark*) after the First World War. In essence, those virtual currencies that cannot be claimed through identification are “held in infinity” by no one. This is why we believe that regulation is of virtual currency is critical and we outline evidence for this in more detail in the subsequent section.

137. We believe that a formal mechanism would include a mixture of judicial courts, both Federal and State, actions from regulatory agencies (*e.g.*, the Securities and Exchange Commission, FinCEN, the Internal Revenue Service, the Federal Bureau of Investigation, and more), third-party arbitration, and limited self-regulation.

138. See CFPB, *supra* note 131 (identifying that many virtual currencies are not recognized as legal tender or common tender. In fact, there have been several formal complaints filed from users seeking relief from losses. Consequently, many of these complaints have been dismissed for lack of jurisdiction).

139. Several rulings have been issued to clarify minor points that specifically relate to the exchange of virtual currency. See DEP’T OF THE TREASURY FIN. CRIMES ENFORCEMENT NETWORK, FIN-2014-R0001, APPLICATION OF FINCEN’S REGULATION TO VIRTUAL CURRENCY MINING OPERATIONS (Jan. 30, 2014) [hereinafter FinCENb] (noting that a miner is the original “creator” or individual that first acquires a virtual currency and as such is not a money transmitter as defined by FinCENa. This ruling is very similar to the Securities and Exchange Acts of 1933 and 1934 where a different status is placed on original purchases and second owners, respectfully, of stocks. Moreover, this is in line with the rulings by the IRS pursuant to Notice 2014-21). DEP’T OF THE TREASURY FIN. CRIMES ENFORCEMENT NETWORK, FIN-2014-R0002, APPLICATION OF FINCEN’S REGULATION TO VIRTUAL CURRENCY MINING OPERATIONS (Jan. 30, 2014) [hereinafter FinCENc]; DEP’T OF THE TREASURY FIN. CRIMES ENFORCEMENT NETWORK, FIN-2014-R0011, APPLICATION OF FINCEN’S REGULATION TO VIRTUAL CURRENCY MINING OPERATIONS (Oct. 27, 2014) [hereinafter FinCENd]; DEP’T OF THE TREASURY FIN. CRIMES ENFORCEMENT NETWORK, FIN-2014-R0012, APPLICATION OF FINCEN’S REGULATION TO VIRTUAL CURRENCY MINING OPERATIONS (Oct. 27, 2014) [hereinafter FinCENE]. These rulings do address some key points, there are significant differences in digital, virtual and cryptocurrencies. As such, many of these rulings are so specific that they maybe only applicable to a few select virtual currencies and entities that act as transmitters and exchanges of virtual currencies. These rulings are supporting evidence that virtual currencies are being considered significant influences upon the U.S. economy and its citizens. Moreover, these rulings indicate that public policy is not interested in suppressing the innovation of virtual currencies, but making the transactions of virtual currencies more transparent. Furthermore, we believe that these rulings are establishing a national framework for regulation and acceptance of virtual currencies which is essential in both protecting the national economy but also providing some minimum protections for individuals using virtual currencies. On May 7, 2014, the SEC issued this statement,

legal or common tender uses, provided that virtual currencies were considered such.<sup>140</sup> A report issued by the Financial Action Task Force<sup>141</sup> provides a common ground reference of critical terminology that is essential in making a standardized platform for the operation of virtual currencies. It is these critical definitions and elimination of ambiguity and uncertainty in treatment of virtual currencies that will help facilitate dispute resolution.<sup>142</sup> As noted above, governments have been and continue to review “*what is*” virtual currency in terms of property.<sup>143</sup> The regulatory entity needs not be a governmental organization but conceivably could be the issuer of the virtual currency provided certain assurances were in place.<sup>144</sup> Dispute resolution reduces volatility in price and facilitates a more stable *financial instrument*, as most common definitions place virtual currencies, over the long term. For dispute resolution to be successful, it is necessary for some financial regulation to occur, even if it is self-regulation.

Thirdly, financial regulation of virtual currencies is necessary to ensure that the general public is not at a significant risk of loss or harm.<sup>145</sup> This sentiment is not just focused in the United States or in the United Kingdom, but also many other foreign governments as virtual currencies have no geographic boundaries nor borders with the aid of the World Wide Web.<sup>146</sup> The primary reasons given for regulation are to deter money laundering and terrorism.<sup>147</sup> Outside of preventing criminal activities through regulating

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“Using Bitcoin may limit your recovery in the event of fraud or theft.” SEC, *Investor Alert: Bitcoin and Other Virtual Currency-Related Investments*, SEC. (May 7, 2014), [http://sec.gov/oiea/investor-alerts-bulletins/investoralertsia\\_bitcoin.html](http://sec.gov/oiea/investor-alerts-bulletins/investoralertsia_bitcoin.html). Moreover, the SEC emphasized that “A new product, technology, or innovation—such as Bitcoin—has the potential to give rise both to frauds and high-risk investment opportunities.” *Id.*

140. *See generally id.*

141. *Virtual Currencies: Key Definitions and Potential AML/CFT Risks*, Fin. Action Task Force (June 2014) [hereinafter FATF] (explaining that FATF is an inter-governmental think tank charged with promoting policies for anti-money laundering (AML) and counter-terrorist financing (CFT) based in Paris, France (*e.g.*, FIN. ACTION TASK FORCE, <http://www.fatf-gafi.org>).

142. *See generally id.* (listing key definitions for virtual currencies)

143. GAO-14-496, *supra* note 134.

144. *See* FATF, *supra* note 141 (identifying that virtual currencies such as Bitcoin have been used to commit crimes against people and public interests which required several government agencies to cooperate in stopping these actions. Most notably is the use of Bitcoins to facilitate human trafficking, prostitution, and the sale of drugs on Silk Road an internet site that brought buyers and sellers together. It was this anonymity that fostered the economic growth of this underground economy into the mainstream markets similar to eBay and Craigslist.).

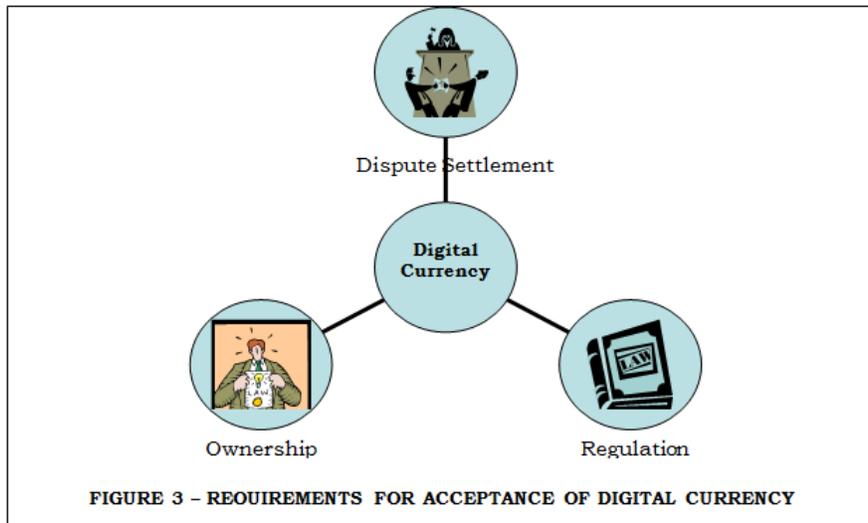
145. *See generally* ECB, *supra* note 72, at 27 (noting two U.S. Senators, Charles Schumer (D) of NY and Joe Manchin (D) of WV, started campaigning against all forms of virtual currencies since June 2011. Moreover, by letter dated Feb. 26, 2014, Manchin further advocates the necessity for regulation of Bitcoin and by extension virtual currencies and cryptocurrencies to the primary agencies of the United States have financial oversight, influence and control over matters of currencies.).

146. *Id.* at 10. (noting financial instruments (*e.g.* scrip, stamps, and common tender) were mostly confined to a limited geographic region). Lovett, *supra* note 96; Tan, *supra* note 58; Tavakol, *supra* note 38, at 1203). But with virtual currencies, growth beyond the geographic region is not dependent on the manufacturing of representative “tokens.” Nor is it contingent on financial intermediaries. It is contingent upon compatible technology and platforms.

147. *See* INTERPOL, <http://www.interpol.int/> (last visited Sept. 6, 2015) (explaining that INTERPOL’s mission is to combat criminal activities, including illicit financial transaction, through the cooperative efforts of a multinational police force. It is the legal status of virtual currency and the intention of the transactions of virtual currency that INTERPOL concerns itself. With increasing use of virtual currencies to conduct criminal

virtual currency, governments use regulation as a means to levy taxation.<sup>148</sup> Beyond criminal activity and taxation, regulation is used to reduce risks associated with the virtual currency.<sup>149</sup> Risk minimization is an important part of attracting users of a virtually currency—low risk is high use as high risk translates to low use.

Figure 3, below, illustrates the three requirements necessary for the use of virtual currency as a viable and common currency. At the heart of this figure is digital currency. We believe that the three prongs, as outlined above, are almost equally important in supporting the sustainability of virtual currencies. The first prong is the question of *Ownership* which is noted in the lower left of the figure. This is a foundation that helps stabilize the value and consumer faith in this virtual financial instrument. Secondly, *Regulation* is a supporting mechanism that helps positively facilitate consumer confidence and providing assurances to users and non-users of virtual currencies. Finally, *Dispute Settlement* is presented at the top of the figure as both supporters are necessary to ensure successful and consistent outcomes based on the principals of ownership and the ability to regulate the transactions associated with ownership.



operations, especially with international transactions, INTERPOL has taken notice and has held conferences specifically targeting combating these activities.).

148. Notice 2014-21, *supra* note 129; HMRC, *supra* note 130. The taxation of an asset or income derived from that asset is contingent upon the definitions assigned by the governing body.

149. See generally ECB, *supra* note 72, at 40 (noting our classifications of risk are presented: Credit, liquidity, operational, and legal. Credit risk involves the settlement and completion dates as well as the ability to meet the obligations associated with the transaction. Liquidity risk addresses a virtual currency's ability to convert into another asset and the speed at which this conversion takes place. Operational risk focuses on the entity's (e.g., bank, money transmitter, or other such facilitating organization) ability to continue forward in that role. Finally, legal risk focuses on the impact that regulatory forces and other governmental entities can have on virtual currencies structure and classification); see also FinCENa, *supra* note 5; FinCENb-e, *supra* note 139.

Our discussions focused on electronic, digital or virtual currency as common tender.<sup>150</sup> We used academic articles, news clippings, and on-line discussions. These non-academic sources provided critical insight into virtual common currency as transactions without a central regulated banking system and government oversight is relatively new and subject to rapid market changes. Our intention was to obtain the best available information from the source—from individuals associated with virtual currency.<sup>151</sup> This knowledge allow an intellectual discussion on when and if virtual currency will be viable and accepted by the federal government, state governments, public corporations, private corporations, and individuals in the United States.

## V. VIRTUAL CURRENCY AS A FINANCIAL MEDIUM OF EXCHANGE

How currency is represented is not the primary issue, but its ability to be an instrument of purchasing power, economic mobility, and social mobility.<sup>152</sup> Currency, as a financial medium of exchange, must be versatile in facilitating transactions or users may seek alternative financial tools that serve their purpose. Some virtual currencies, such as Bitcoins,<sup>153</sup> have emerged as leading alternative financial instruments to traditional transactions.

Bitcoins were established in 2009<sup>154</sup> as a decentralized virtual currency that has no dominant regulating body.<sup>155</sup> Unlike many financial transactions, transactions with Bitcoins cannot be reversed and may be conducted potentially with anonymity.<sup>156</sup> The maximum supply of Bitcoins is limited to

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150. See Tavakol, *supra* note 38, at 1227–28 (explaining the use of virtual currency by governments would largely be avoided due to the ability to accurately track the movement of such funds that are outside the “banks”).

151. We have identified several individuals that could provide critical insight into virtual currency as subject matter experts but declined to interview those individuals. Considering that virtual currencies could be considered a criminal circumvention of legal tender in selected State jurisdictions, we did not wish to subject those individuals to any possible legal actions that could arise from these interviews and subsequent publication of statements. However, those articles already published and social media outlets that were publically assessable were deemed acceptable as we were not creating any new information.

152. Lawrence P. Shao, Ralph E. McKinney, Jr. & Dale Shao, *Purchasing Power of Credit, Social Mobility, and Economic Mobility*, 12 EUROPEAN J. OF BUS. RES. 73 (2012) [hereinafter Shao] (noting that purchasing power includes the individual or organization’s ability to acquire goods and services using cash, cash equivalents, credit, reputation, and other lines of credit to facilitate purchases. Economic mobility is the access to financial resources such as purchasing power coupled with non-financial resources (*i.e.*, social mobility) to obtain a better financial position in life. Social mobility is the ability for an individual to change his/her social class through education, career paths, association with groups, and family reputation.).

153. Satoshi Nakamoto, *Bitcoin: A Peer-to-Peer Electronic Cash System*, BITCOIN (last visited Aug. 22, 2013), <https://bitcoin.org/bitcoin.pdf>. (explaining the philosophical, theoretical, and technological foundation for this virtual currency. In fact, many other virtual currencies are based on similar technology: Cryptology, authentication, and the transference of ownership. Additionally, the name Satoshi Nakamoto is a pen name to hide the author or author’s true identities.).

154. *Digital Currencies: A New Specie: Regulators Should Keep Their Hands Off New Forms of Digital Money Such as Bitcoin*, THE ECONOMIST (Apr. 13, 2013), <http://www.economist.com/node/21576104/> [hereinafter ECONOMIST, *Digital*].

155. *Virtual Currencies: Mining Digital Gold. Even if it Crashes, Bitcoin May Make a Deal in the Financial World*, THE ECONOMIST (Apr. 13, 2013), <http://www.economist.com/node/21576149/>. [hereinafter ECONOMIST, *Virtual*].

156. *Some Things You Need to Know*, BITCOIN, <https://bitcoin.org/en/you-need-to-know> (last visited Apr. 26, 2013).

twenty-one million based upon a unique signature generated for each Bitcoin.<sup>157</sup> While limited,<sup>158</sup> Bitcoins may be divided into units as small as eight decimal points.<sup>159</sup> Users can obtain Bitcoins either through the creation (called mining) of a Bitcoin when complex algorithms are solved by computers or from private holders and exchanges of Bitcoins.<sup>160</sup>

The largest currency conversion exchange is Mt. Gox, where approximately 80% of Bitcoin are exchanged.<sup>161</sup> According to Peck,<sup>162</sup> a limited number of intermediary exchanges can present trading dilemmas for any currency.<sup>163</sup> For Mt. Gox, a major Bitcoin trading problem caused Bitcoin values to drastically fall in price by approximately 50%. Unlike most exchanges, Bitcoin transactions can take an average of ten minutes to verify.<sup>164</sup> In turn, trading losses could be realized during panic sales<sup>165</sup> when the supply of currency exceeds the demand for currency.<sup>166</sup> Ultimately, Mt. Gox temporarily halted “banking” services,<sup>167</sup> which are reminiscent of the United States President Franklin Roosevelt’s declaration of four-day banking holiday

157. ECONOMIST, *Digital*, *supra* note 154.

158. Although Bitcoins are limited, using the maximum whole number of 21,000,000 and dividing this into the smaller units, the maximum capacity is 2,100,000,000,000 unique coins. This assumes that all divisions are done with numbers and not with alphabets, symbols, and special characters. Using the American alphabet would provide possible permutations of about 2,100,000,000,000,000 to the 26<sup>th</sup> power. With the symbols and special characters, that number is further increased to almost limitless possibilities assuming these are part of the algorithm. Consequently,  $2.1 \times 10^{15}$  has been identified as the maximum amount of Bitcoins. It is important to note, Bitcoins are finite in number and as such, are subject to scarcity. First, the aggregate of individuals holding Bitcoins as long-term investments reduces the virtual currency available for use. Unlike traditional hard currency supplemented with credit and debt usage purchases enabled by credit cards, virtual currency has not developed a mechanism for debt purchases. Secondly, lost, mislaid, abandoned Bitcoins and Bitcoins confiscated by government entities may not be returned to circulation. Thus, this may further reduce the maximum available Bitcoins. While a mechanism could be created to replace those Bitcoins lost, this erodes the ownership rights of individuals having a claim to the virtual currency that is further complicated by the anonymity of ownership of said currency. Hence, Bitcoin may be subject to *Joseph Schumpeter’s theory of Creative Destruction* as scarcity and the inability to replace uncirculating Bitcoins cause a substitution effect where users choose alternative virtual currencies.

159. *Frequently Asked Questions*, BITCOIN, <https://bitcoin.org/en/faq> (last visited Aug. 21, 2015).

160. ECONOMIST, *Virtual*, *supra* note 155.

161. *Bitcoin Panic Selling Halves its Value*, BBC NEWS (Apr. 11, 2013), <http://www.bbc.co.uk/news/technology-22105322> [hereinafter BBC NEWS, *Bitcoin Panic*]. Subsequently, Mt. Gox filed for bankruptcy protection and has since become defunct as an exchange. *In Re Mt. Gox Co. No. 14-31229* (Bankr. N.D. Tex. Mar. 9, 2014).

162. Morgen Peck, *3 Years in, Bitcoin Digital Money Gains Momentum*, SCI. AM. (Oct. 8, 2012), <http://www.scientificamerican.com/article.cfm?id=3-years-in-Bitcoin-digital-money-gains-momentum> [hereinafter Peck].

163. With all financial exchanges, there are always possibilities that trading dilemmas exist. However, with a monopoly or very few exchanges available the general public, these dilemmas are significantly amplified. In addition to the non-competitive nature of the exchanges for virtual currency, traders are subject to the opening and closing of the exchange. Moreover, virtual currency is subject to technological barriers—if technology is insufficient, the ability to trade is non-existent or severely limited. Furthermore, the exchange must have access to the virtual currency in order to satisfy consumer demand.

164. BITCOIN, *supra* note 159.

165. BBC NEWS, *Bitcoin Panic*, *supra* note 161.

166. As indicated earlier, an exchange’s access to virtual currency is a critical aspect of meeting consumer demand. In this example, the inability to meet demand created an exceptionally large trading gap where the value of the virtual currency as a whole was impacted. If there were alternative exchanges where traders would be able to obtain virtual currencies, then the impact to the value of said currency may be minimized provided that any alternative exchanges could meet consumer expectations.

167. BBC NEWS, *Bitcoin Panic*, *supra* note 161.

in 1933.<sup>168</sup> Even if Bitcoin can stabilize its value, the speed of transactions needs to increase dramatically for it to be a viable form of virtual payments.<sup>169</sup> A virtual currency must have a broad trading base to operate to be an effective medium of exchange.<sup>170</sup> In addition to limited intermediary exchanges, Peck<sup>171</sup> and BBC<sup>172</sup> note that limited vendor acceptance and the increased number of virtual thefts of Bitcoins have caused conceptual changes (*i.e.*, increased security and cryptology) to Bitcoin.

Because virtual currencies can support anonymity, illicit transactions can more easily be conducted using virtual currency.<sup>173</sup> The United States Department of Justice indicted<sup>174</sup> E-Gold Ltd, Gold & Silver Reserve, Inc., and three owners for performing as an alternative payment system that aids in facilitating money-laundering activities.<sup>175</sup> Subsequently, those charged plead guilty.<sup>176</sup> Furthermore, the Department of Justice<sup>177</sup> notes that “new electronic currency systems increases the risk that criminal, and possibly terrorists, will exploit these systems to launder money and transfer funds globally to avoid law enforcement scrutiny and circumvent banking regulations and reporting.”<sup>178</sup> Thus, any virtual currency must consider the jurisdictional

168. Exec. Order 6102, 31 C.F.R. 120.2 (1933) [Proclamation 2039—Declaring Bank Holiday] led to a chain of policies through a combination of Congressional Legislative Actions (see Emergency Banking Act of 1933, Public Law 73-66, 48 Stat. 162 for the formation of the Federal Deposit Insurance Corporation “FDIC”) and Executive Actions (Proclamation 2040—Bank Holiday). While there is a distinction between “hard” and “virtual” currencies, the 1933 actions resulted from significant problems associated with the access to property, that is gold coin and legal tender, which ultimately resulted in the unprecedented demand by customers of the return of deposits from banks and other financial institutions. Eighty years later in 2013, a similar demand on “financial institutions” concerning Bitcoins was made. It should be noted that holders of Bitcoins are subject to losses without any backing of insurances such as FDIC.

169. See generally Schreft, *supra* note 114 (discussing payment methods and practical considerations for different media of exchange). Virtual payments will need to mimic remote purchases and “real currency” to be widely accepted and used. *Id.*

170. *Id.*

171. Peck, *supra* note 162.

172. *Bitcoin Theft Causes Bitfloor Exchange to Go Offline*, BBC NEWS (Sept. 5, 2012), <http://www.bbc.co.uk/news/technology-19486695> [hereinafter BBC NEWS, *Bitcoin Theft*].

173. BITCOIN, *supra* note 159; Peck, *supra* note 162.

174. U.S. Dep’t of Just., *Digital Currency Business E-Gold Indicted for Money Laundering and Illegal Money Transmitting*, US DoJ Publication No. 07-301 (April 27, 2007) [hereinafter Dep’t of Justice].

175. *Id.* According to the release, “one count of conspiracy to launder monetary instruments, one count of conspiracy to operate an unlicensed money transmitting business, one count of operating an unlicensed money transmitting business under federal law and one count of money transmission without a license under D.C. law.”

176. *United States v. E-Gold, Ltd.*, 550 F. Supp. 2d 82 (2008). This case focused on a “digital currency” that was the primary financial medium of exchange in an unlicensed “money transmitting business” (see 18 U.S.C. § 1960 (prohibiting unlicensed money transmitting businesses)). Moreover, this case identifies that the conversion of digital currency to another currency, domestic or foreign, is enough to be considered a money transmitting business; 31 U.S.C. § 5330 (detailing that when United States coins or currency is involved in financial transfers by a domestic financial institution, then that institution must report such as advised by the Secretary of the Treasury (31 U.S.C. § 5313(a))); see also Press Release, Secret Serv., In U.S. Secret Service-Led Investigation, Digital Currency Business E-Gold Pleads Guilty To Money Laundering and Illegal Money Transmitting Charges, GPA 14-08, U.S. Secret Serv., U.S. Dep’t of Homeland Sec. (July 22, 2008), <http://www.secretservice.gov/press/GPA14-08EGold.pdf> (noting E-Gold’s guilty plea for multiple charges) [hereinafter Secret Serv.]; see also, Judson, *supra* note 75, at 9 (stating “The United States Secret Service (USSS) is responsible for investigating, prosecuting, and preventing counterfeiting activity.”).

177. Secret Serv., *supra* note 176.

178. Dep’t of Just., *supra* note 174.

limitations imposed by government regulators<sup>179</sup> such as FinCEN<sup>180</sup> especially when transmitting claims to assets<sup>181</sup> which may extend to being held as an investment or asset.<sup>182</sup>

The table below<sup>183</sup> presents ten virtual currencies and how those currencies represent the three requirements necessary for a successful virtual currency.

VIRTUAL CURRENCY	Property	Dispute Resolution	Regulation
Bitcoin	Yes	No	Limited
Litecoin	Yes	No	Limited
Peercoin	Yes	No	Limited
Namecoin	Yes	No	Limited
Feathercoin	Yes	No	Limited
Megacoin	Yes	No	Limited
Novacoin	Yes*	No	Limited
BitShares BPS (Formerly ProtoShares)	Yes*	No	Limited
QuarkCoin	Yes*	No	Limited
WorldCoin	Yes*	No	Limited

179. This becomes more difficult in determining jurisdictional limitations when dealing with foreign governments and financial instruments without a true basis such as virtual currency. In *Morrison v. Nat'l Austl. Bank Ltd.*, 561 U.S. 247 (2010), the Court determined that there are limitations of law with respect to foreign claims and assertions; and that when those limitations are met that a certain standard of proof must be presented before any action can be taken.

180. Jennifer Shasky Calvery, *The Virtual Economy: Potential, Perplexities and Promises*, REMARKS OF JENNIFER SHASKY CALVERY DIR. FIN. CRIMES ENFORCEMENT NETWORK (June 13, 2013). FinCEN answers to the Office of Terrorism and Financial Intelligence.

181. *Id.* at 4. (“[K]eep in mind the combined actions by the Department of Justice and FinCEN took down a \$6 billion money laundering operation, the biggest in U.S. history.”). Moreover, as virtual currencies are convertible to a currency, the central traders of such may be deemed an “alternative trading system” under 7 U.S.C. § 1(a). Essentially, anyone acting as a broker or facilitator for such exchanges may be subject to additional such regulators pursuant to the Securities Exchange Act of 1934. Thus, virtual currencies are similar to “stock” regulations, but in some instances, virtual currencies may be considered more fluid and comparable to common tender.

182. *U.S. Commodity Futures Trading Comm’n v. States*, 674 F. Supp. 2d 1311 (S.D. Fla. 2009). In this case, relief was granted to the plaintiffs on the basis that the allegations of illegal trading practices under the Commodity Exchange Act were true. Specifically, participants must have had access to a digital currency account (either INT Gold or e-Gold) to conduct business with Infinity. Furthermore, Notice 2014-21, *supra* note 129, classifies virtual currencies similarly to stock and bonds. Collectively, FinCEN, *supra* notes 5, 139, 180, treats virtual currencies as being subject to regulation as instruments of money transmission.

183. See Reuven Cohen, *The Top 30 Crypto-Currency Market Capitalizations in One Place*, FORBES (Nov. 27, 2013), <http://www.forbes.com/sites/reuvencohen/2013/11/27/the-top-30-crypto-currency-market-capitalizations-in-one-place/> (showing the top ten virtual currencies and applying the three requirements that we believe that virtual currencies need to be successful).

Considering the recent property classifications of virtual currency, each one fits this classification. Consequently, the lower four have been marked as it was difficult to identify critical information from the primary entity's website concerning what constitutes virtual currency. Therefore, the classification of Novacoin, BitShares BPS, QuarkCoin, and WorldCoin is largely contingent upon secondary characteristics of regulation. It is this regulation, to some extent, that drives the recognition of property. Furthermore, we restricted this evaluation to consider its implications in only the U.S.

After a comprehensive review of each virtual currency, the requirement for dispute resolution has not been satisfied for any virtual currency. In fact, only Bitcoin provided some information concerning the legality and risks associated with ownership and usage of that virtual currency.<sup>184</sup> For dispute resolution, self-regulation is considered, at least partially, to provide some level at which an individual can have a grievance or an appeal for assistance heard. Again, no virtual currency we investigated had this mechanism. We believe that as transactions in virtual currencies increase, the recognition of virtual currencies as properties, and as regulations increase, dispute resolution will also emerge. This supports Figure 3 as both ownership and regulation are supporters of virtual currencies that provide a foundation for dispute resolution.

Regulation for each is limited. Overall, the U.S. has the general power to regulate virtual currencies.<sup>185</sup> However, this regulation mostly affects the users and transmitters of virtual currency. Alternatively, some States have the ability to regulate virtual currency, contingent upon how that currency is defined in terms of property.<sup>186</sup> This may not be with all virtual currencies. As the currencies above are the top ten traded virtual currencies,<sup>187</sup> regulation is assured under the concept of money transmissions.<sup>188</sup> It should be noted that similar to other currencies and investments, virtual currency prices may fluctuate and that these ranking were based on previous market conditions; and as such, may no longer be the case today. With less sought after virtual currencies, this may not be the case. Regulation is mostly assured considering the popularity is increasing for virtual currencies.<sup>189</sup>

Although the popularity of virtual currency including Bitcoin has increased<sup>190</sup> primarily through social media,<sup>191</sup> some advocate against using a

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184. *Legal Disclaimer*, BITCOIN, <https://bitcoin.org/en/legal> (last visited Aug. 22, 2015) [hereinafter Bitcoin Legal].

185. FinCENa, *supra* note 5.

186. See GAO-14-496 *supra* note 134 (explaining that this article assumes that virtual currency fits the definition of intangible personal property).

187. Cohen, *supra* note 183.

188. See *supra* notes 5, 139 (collectively finding virtual currencies to be subject to regulation as instruments of money transmission).

189. See Economist, *Digital*, *supra* note 154 at 1–2 (“[M]ore and more people and businesses are prepared to accept Bitcoins as a way to make and receive payments.”).

190. Bitcoin Under Pressure, ECONOMIST (Nov. 30, 2013).

191. Economist, *Digital*, *supra* note 154.

virtual currency.<sup>192</sup> Angel<sup>193</sup> suggests that as virtual currencies are created without a legitimate basis, a virtual currency most likely would be used for criminal activities such as a fraud associated with a Ponzi<sup>194</sup> scheme.<sup>195</sup> This is primarily due to the fact that a virtual currency is not tangible and easily convertible or transferable to other parties.<sup>196</sup>

Nonetheless, a virtual bank establish in France provides the same protection of virtual assets as traditional financial institutions offer for currently common and accepted currency.<sup>197</sup> In essence, the virtual currency movement is making progress towards a common currency becoming legitimate. Furthermore, with the value of virtual currency increasing and its utility of being used to facilitate transactions and to conduct business operations, it will be a target of counterfeiting.

## VI. COUNTERFEITING

Coins and notes have been around in various forms for thousands of years and so too has counterfeiting currency.<sup>198</sup> Counterfeiting may also be described as the replication or manufacture of a financial instrument (*e.g.*, currency, stamps, bank notes, scrip, and tokens) with the intent to defraud an individual, entity, or government. However, there are similar definitions without the intent to defraud.<sup>199</sup> We believe that the intent is critical to the

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192. *Id.* at 2.

193. James J. Angel, *Don't get Bitten by Bitcoins*, CNN (Apr. 12, 2013) <http://www.cnn.com/2013/04/11/opinion/angel-bitcoin-currency>.

194. Marc Artzrouni, *The Mathematics of Ponzi Schemes*, 14420 MUNICH PERSONAL REPEC ARCHIVE (Apr. 2, 2009), [https://mpa.ub.uni-muenchen.de/14420/1/MPRA\\_paper\\_14420.pdf](https://mpa.ub.uni-muenchen.de/14420/1/MPRA_paper_14420.pdf). Ponzi Schemes were named for Charles Ponzi who, in the 1920s, conned investors into allowing him to manage their investments for a promise of very high returns. Subsequent investors' funds were erroneously provided to previous investors to satisfy their expectations and support this ruse. However, at some point, Ponzi could no longer support the high returns as additional investors could not offset previous promises to prior investors; *see also Ponzi Scheme*, SEC, <http://sec.gov/answers/ponzi.htm> (last visited Aug. 22, 2015) (discussing the Securities and Exchange Commission's investigations of Ponzi Schemes).

195. James O'Toole, *Bitconned: SEC Busts Alleged Bitcoin Ponzi Scheme*, CNN MONEY (July 23, 2013), <http://money.cnn.com/2013/07/23/investing/bitcoin-ponzi-scheme/> (stating that the SEC has the power to regulate all financial instruments including digital investments).

196. SEC v. Prater, No. Civ.A. 303CV1524MRK, 2005 WL 2585269, at \*1 (D. Conn. Aug. 24, 2005). In this case, fictitious accounts (*i.e.*, SpingPay) were created by users where the fraudsters accounted for funds but failed to attach any "real" currency to those accounts. This was the basis of the Pyramid Scheme, to account for the funds only on the surface.

197. *See Virtual Cash Exchange Becomes Bank*, BBC NEWS (Dec. 7, 2012), <http://www.bbc.co.uk/news/technology-20641465> [hereinafter BBC News, *Virtual Cash*] (discussing how Bitcoin-Central was created after collaborating with Aqoba and Credit Mutuel).

198. Levenson, *supra* note 32; *see also* Zs. Kasztovszky, ET AL. *Comparative Archaeometrical Study of Roman Silver Coins by Prompt Gamma Activation Analysis and SEM-EDX*, 265 J. OF RADIOANALYTICAL & NUCLEAR CHEMISTRY 193, at 198 (2005) (showing instances of denarii coins issued under Roman rule in the 2<sup>nd</sup> century C.E. which have been discovered as forgeries).

199. CHRISTINE AMMER & DEAN S. AMMER, *DICTIONARY OF BUS. & ECON.: REVISED AND EXPANDED EDITION* 111 (The Free Press: NY, 1984) [hereinafter Ammer] (A "counterfeit [is defined as] . . . [d]escribing a false coin or currency made in imitation of a lawful one. Also, to make such an imitation. The word originally meant to press a soft mold against something, and therefore refers to items that are engraved, as coins and paper money are."); *see also* Barnard, *supra* note 53, at 601 ("The line of demarcation, for example, between the issuing of tokens and counterfeiting is by no means always clear. The difficulty is all the more evident when it is remembered that tokens frequently resemble the authorized money of the country, and that

definition of counterfeiting.<sup>200</sup> Furthermore, the primary motive behind counterfeiting is to increase one's financial position either through the use of fraudulent currencies in the acquisition of goods and services<sup>201</sup> or by the destabilization of a currency in the case of war.<sup>202</sup>

In highly volatile economic and political conditions, dollars can virtually drive out other assets including domestic currency. Moreover, once people lose faith in their local currency, they tend to hold dollars for a long time before the local currency is able to regain credibility.<sup>203</sup>

In January 1776, the British used counterfeiting to flood the colonies that later comprised the United States with fake currency that resulted in the replacement of \$40 million worth of currency.<sup>204</sup> Ultimately, the United States currency became worthless by 1781 due to these British counterfeiting tactics.<sup>205</sup> These tactics may be attributed to Dr. Benjamin Church and John Fleming as their attempt to counterfeit colonial currency in an effort to extinguish debts and maintain their current economic status.<sup>206</sup> This was not the only instance of financial warfare in the colonies nor is it the only one globally.<sup>207</sup>

Another example of wartime counterfeiting commenced on September 18, 1939.<sup>208</sup> Operation Bernhard<sup>209</sup> was a secret German operation aimed at producing counterfeit British currency.<sup>210</sup> Using captured prisoners, approximately £132 million was produced by 1945.<sup>211</sup> The amount of counterfeit currency represented approximately 15% of what was actually circulating.<sup>212</sup> But this plan never fully succeeded.<sup>213</sup>

counterfeits are not always exactly like the money they seek to imitate. The legal prohibitions of counterfeiting are the most satisfactory criteria for distinguishing between what is counterfeit and what is token. In the United States, at any rate, the law has been very specific in defining what constitutes counterfeiting.”)

200. The intent to commit fraud becomes a critical concept in penal codes, statutes, and criminal prosecution. This is illustrated in Table 1 of Part IX when considering the various State statutes concerning counterfeiting—intent is a part of each.

201. Levenson, *supra* note 35. Eric P. Newman, *The Successful British Counterfeiting of American Paper Money During the American Revolution*, 29 *BRIT. NUMISMATIC J.* 174 (1958). [hereinafter Newman]. “[C]ounterfeiting for personal gain has a record as old as currency itself . . .”)

202. Ultimately, the goal of counterfeiting in times of war is to increase the economic power of one nation by degrading another nation's currency. This is most effectively done when the users of said currency lose faith in its value; and thereby those users seek alternative forms of conducting transactions. This may be the increased use of precious metals, bartering, and the use of substitutive forms of payments including other currencies.

203. Judson, *supra* note 75, at 6. Furthermore, the use of dollars as a valued currency can easily be replaced by another strong currency. The primary point is that the currency perceived as having the ability to hold its value over an extended time will prevail. Thus, the concept is risk minimization.

204. Levenson, *supra* note 32, at 31. Newman, *supra* note 201, at 174 states “Counterfeiting is now planned and guarded against as an important element in the strategy of modern warfare.”

205. Newman, *supra* note 201, at 174.

206. *Id.* at 179.

207. Newman, *supra* note 201, at 174.

208. Michael E. Telzrow, *Nazi Counterfeiters*, *THE NEW AM.*, Aug. 18, 2008, at 33.

209. *Id.* at 33 (noting that the operation was named after Bernhard Krueger).

210. *Id.* at 34.

211. *Id.*

212. *Id.*

Today, it is estimated that approximately \$60 to \$80 million in counterfeit United States currency is circulating.<sup>214</sup> This translates to a value that is less than \$1 in counterfeit funds per \$10,000 in actual currency.<sup>215</sup> According to Svoboda, a closer estimate is more than \$70 million in counterfeit currency is always in circulation.<sup>216</sup> Without countermeasures to counterfeiting, the roughly \$60 to \$80 million could be significantly higher.

## VII. COUNTERFEITING COUNTERMEASURES FOR COINS, NOTES AND VIRTUAL FINANCIAL INSTRUMENTS

As presented in the previous Part, counterfeiting can significantly and detrimentally erode the financial foundation and the underpinnings of national economic systems.<sup>217</sup> In some cases, this erosion can further impact global markets.<sup>218</sup> Thus, it is in the national interest to entrench countermeasures to counterfeiting to deter and minimize any impact that fraudulent schemes have upon an economy.<sup>219</sup> To better illustrate the dynamics of counterfeiting and counterfeit countermeasures, the figure below is presented.

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213. *Id.* The prisoners would periodically reduce work output as they understood that when the operation was completed, they were to be executed. Additionally, the British government stopped allowing any currency from entering into the country. *Id.* at 35.

214. Judson, *supra* note 75, at 13. However, some extrapolation can place the aggregate amount of counterfeit currency in circulation between \$120 to \$220 million. *Id.* at 32. But, the most plausible amount would be the \$60 to \$80 million. *Id.*

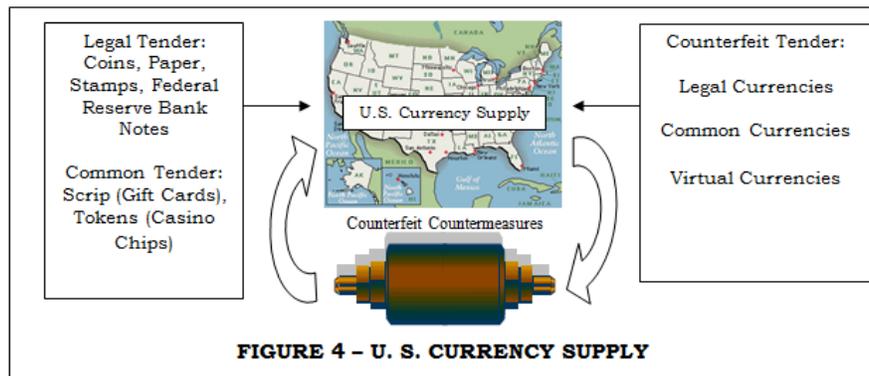
215. *Id.* at 13.

216. Elizabeth Svoboda, *Building Better Money*, POPULAR SCI. (Feb. 2008), at 52 (2008).

217. Judson, *supra* note 75, at 6; Ciro Grandi, *The Protection of the Euro Against Counterfeiting*, 12 EUROPEAN J. OF CRIME, CRIM. LAW, & JUST. 89 (2004) [hereinafter Grandi]. It is in the best interest of Governments to punish foreign currency counterfeiting within their own jurisdictions as failures to deter these actions could give rise to a failure of enforcement (essentially the granting of immunity) to a perpetrator. *Id.* at 99. Furthermore, “[c]ounterfeiting primarily harms the monetary sovereignty of the States and the development of economic relationships, which are based on the common confidence about the authenticity of money.” *Id.* at 98.

218. Evan F. Kohlman & Rodrigo Bijou, *Planning Responses and Defining Attacks in Cyberspace*, 126 HARV. L. REV. 173, 173 (2013) (noting that attacks in Cyberspace do target financial systems as a means to wage economic warfare and to conduct terrorist activities).

219. *Id.* “A lack of established international legal procedures, a hazy public understanding of the mechanics of electronic intrusions, and cyberterrorists’ exponentially faster operational tempo (all combined with the extreme challenges involved in definitively identifying perpetrators on the Internet) have allowed some lawless actors to operate with a surprising sense of impunity.” In fact, there need to be clear benchmarks of law establishing protocols and operations surrounding property rights and the triggering factors in which these protocols can take place. *Id.* at 174. Moreover, we must “uphold law and order across the digital domain.” *Id.* at 175. This would extend to the counterfeiting of virtual currencies as well as financial disruptions of any legitimate financial transaction.



A large part of this counterfeit currency can be traced to the technology of virtual scanners and printers. Countermeasures against the counterfeiting of “traditional” currency are presented below.

#### COUNTERFEITING COUNTERMEASURES FOR COINS & NOTES<sup>220</sup>

- Micro-Microprinting—extremely small print that is difficult, though not impossible to scan and print.<sup>221</sup>
- Security Threads—embedded threads with words printed on them in a very small font.<sup>222</sup>
- Watermarks.<sup>223</sup>
- Tricky Images—using scanners and photo software to create extremely accurate details.<sup>224</sup>
- Color Changing Ink – ink changes color as the currency is moved.<sup>225</sup>
- Enlarged off-center portraits.<sup>226</sup>
- Changes in the design of currency.<sup>227</sup>
- Special high-grade paper.<sup>228</sup>
- Coins are easier to counterfeit, but their smaller value results in less counterfeiting.<sup>229</sup> Similarly, lower value paper currency counterfeiting

220. Judson, *supra* note 78, at 11.

221. *Id.*

222. *Id.*

223. *Id.*

224. *Id.*

225. Mariana R. de Almeida, et al., *Discrimination Between Authentic and Counterfeit Banknotes Using Raman Spectroscopy and PLS-DA with Uncertainty Estimation*, 109 MICROCHEMICAL J. 170, 173 (2013) [hereinafter Almeida]. In addition to color changing ink, the use of a portable device using Raman Spectroscopy may provide forensic methods able to distinguish between authentic and counterfeit notes.

226. Williams & Anderson, *supra* note 15, at 374.

227. Yvan Lengwiler, *A Model of Money Counterfeits*, 65 J. OF ECON. 123, 123–24 (1997).

228. Judson, *supra* note 75, at 17. Moreover, this high-grade paper has a distinct texture or feel to it that helps readily identify authentic currency.

229. Svoboda, *supra* note 216.

is infrequent as well.<sup>230</sup>

While counterfeiting coin and paper financial instruments and also their countermeasures, virtual currency has appeared relatively recently and the methods used to discourage their counterfeiting are also recent developments.<sup>231</sup> Virtual currency can take the form of digital cash, e-tokens, e-vouchers, all representing forms that may be used to pay bills in an electronic form instead of a hard money form, such as paper currency and coins.<sup>232</sup> Recently, versions of virtual currency have caused financial entities such as the European Central Bank to take notice.<sup>233</sup> Bitcoin has garnered the most attention, as it grew from a value of a few dollars to \$266 and recently traded at around \$140, all within a relatively short period of time.<sup>234</sup> Bitcoin uses a peer-to-peer platform that uses a purchaser's computer to create an anonymous virtual currency that uses cryptographic technology to achieve a secure, and anonymous, form of payment.<sup>235</sup>

Privacy advocates and libertarians are particularly fond of the anonymity of Bitcoin based transactions.<sup>236</sup> A current downside for countries is that the anonymity of currency such as Bitcoin prevents governments from collecting taxes.<sup>237</sup> In 2011, China decided not to allow any real world items to be purchased with virtual currencies.<sup>238</sup> Another weakness of virtual currency is the fact that, though the system on which Bitcoin exists is a relatively secure one,<sup>239</sup> Bitcoin exchanges that rely on servers, firms offering storage of Bitcoins, and the computers of individuals with Bitcoin accounts, are not as secure as they need to be and have resulted in large losses.<sup>240</sup> These technology related problems are being worked on and mostly solved, but there is still large room for improvement.<sup>241</sup> Countermeasures against the counterfeiting of

230. *Id.* at 130–31; *see also* Judson, *supra* note 75, at 17–18. The \$1 and \$2 denominations of U.S. currency do not have the security features. This is primarily as the cost in materials to produce counterfeit notes of these denominations would far exceed any benefits or financial gains to the producer.

231. Scott Aaronson et al., *Quantum Money*, 55 COMM. OF THE ACM 84 (Aug. 2012); *see also* Tristan Gorrindo & James E. Groves, *Crime and Hate in Virtual Worlds: A New Playground for the Id?*, 18 HARV. REV. PSYCHIATRY 113–14 (2010) [hereinafter Gorrindo] (“Transgressive, addictive, and even criminal behaviors in the real world have their virtual analogs in virtual worlds—including gambling, adultery, fraud, vandalism, prostitution, bigamy, hate speech, and selling of illicit substances, to name a few.”). Considering these criminal behaviors, we can logically conclude that counterfeiting virtual currency would also be included in such a profile for virtual world crimes.

232. *See* FIN. ACTION TASK FORCE, VIRTUAL CURRENCIES KEY DEFINITIONS AND POTENTIAL AML/CFT RISKS 4 (2014) (defining virtual currency).

233. Jacob Aron, *Virtual Economy Looms as Digital Cash Grows Up*, 216 NEW SCIENTIST 22, 24 (2012) [hereinafter Aron]

234. *Id.*

235. Alex Hern, *Digital Boom and Bust*, 142 NEW STATESMAN 21, 21 (2013).

236. *See* Primavera De Filippi, *Bitcoin: A Regulatory Nightmare to a Libertarian Dream*, INTERNET POL'Y REV. (May 2014), at 8 (describing the anonymity of Bitcoins).

237. *Id.*

238. *Id.*

239. Sydney Ember, *Data Security is Becoming the Sparkle in Bitcoin*, N.Y. TIMES (Mar. 1, 2015), <http://www.nytimes.com/2015/03/02/business/dealbook/data-security-is-becoming-the-sparkle-in-bitcoin.html>.

240. Aron, *supra* note 233, at 90–92.

241. Gerry Smith, *How Hackers Could Burst the Bitcoin Bubble*, HUFFINGTON POST, (Apr. 11, 2013, 1:17 PM), [http://www.huffingtonpost.com/2013/04/11/hackers-bitcoin\\_n\\_3052648.html](http://www.huffingtonpost.com/2013/04/11/hackers-bitcoin_n_3052648.html) [hereinafter Smith,

virtual currency are presented below.

#### SAMPLE COUNTERFEITING COUNTERMEASURES FOR VIRTUAL CURRENCY<sup>242</sup>

- Improved security against hackers.<sup>243</sup>
- Cryptographic capabilities are built in to the non-centralized transaction processing software.<sup>244</sup>
- Virtual wallet apps that allow a person to carry virtual cash in their smartphones use passwords and encryption to protect the individual user again theft of their virtual wallet's content.<sup>245</sup>
- Recent improvements in virtual wallets carried on smartphones allow the owner to erase the smartphone's memory remotely, if their wallet is stolen.<sup>246</sup>

Virtual currency has its problems, and is still evolving, but will be a significant part of our financial futures.<sup>247</sup> In Part VIII, we present a brief overview of the regulation of currency by a government.

#### VIII. A GENERAL OVERVIEW OF THE GOVERNMENT REGULATION OF CURRENCY

Governments generally regulate and police currency<sup>248</sup> and therefore they legitimize its value as currency by protecting the public's interest.<sup>249</sup> However, there are some<sup>250</sup> that make the argument that the counterfeiting of illegitimate

*Hackers*].

242. Shweta Srivastava & Vandana Saraswat, *E-cash Payments Protocols*, 4 INT'L J. ON COMPUTER ENG'G 1603, 1607 (2012) [hereinafter Srivastava].

243. Gladstone, *supra* note 125, at 1203 (noting, "'Spawning,' the process whereby multiple claims for payment are created by a single authentic claim, may result from an innocent technical error or as a result of fraud."). It is a known fact that hackers will take advantage of vulnerabilities and "spawning" represents a risk exposure associated with the trustworthiness to any virtual currency. "Double payment results because the issuer is unable to distinguish an authenticate claim from a counterfeit one.;" Dino Grandoni, *Hackers Exploit 'Flash' Vulnerability in Yahoo Ads*, N.Y. TIMES, (last visited Aug. 3, 2015, 9:14 PM), <http://bits.blogs.nytimes.com/2015/08/03/hackers-exploit-flash-vulnerability-in-yahoo-ads/>.

244. *See also*, Srivastava, *supra* note 242. This would include the authentication and signature techniques associated with each and every transaction, to ensure that accurate payment protocols are carried out; *see also* Boris Škorić and Marc X. Makkes, *Flowchart Description of Security Primitives for Controlled Physical Unclonable Functions*, 9 INT'L J. OF INFO. SEC. 327, 327-28 (2010). These cryptographic capabilities would also include Physical Unclonable Functions ("PUFs") which may be used to authenticate a virtual transaction.

245. Brian X. Chen, *The Campaign to Digitize Your Wallet is Intensifying*, N.Y. TIMES (Aug. 9, 2012), <http://www.nytimes.com/2012/08/10/technology/the-campaign-to-digitize-your-wallet-is-intensifying.html>.

246. Srivastava, *supra* note 242.

247. Rosemary Westwood, *The Cold, Hard Cash of the Internet*, 126 MACLEAN 24, 24 (2013).

248. Judson, *supra* note 75, at 10. ("In some countries, counterfeiting of foreign currency is not illegal . . ."). This is an important aspect considering the sovereign rights of other nations and is well beyond the scope of this essay.

249. *See* Tavakol, *supra* note 38, at 1219 (noting payments for goods and services by a government tend to be made by their respective legal tender).

250. *See generally* Walter E. Block, *In Defense of Counterfeiting Illegitimate Money: Rejoinder to Murphy and Machaj*, 69 AM. J. OF ECON. & SOC. 867, 867 (2010) (emphasizing digital currency

currencies,<sup>251</sup> by the virtue that they are not sanctioned by a government,<sup>252</sup> do not constitute and should not constitute criminal activity or criminal charges. Nevertheless, “A policy that deters counterfeiting is needed to maintain the public’s confidence in money.”<sup>253</sup> So much so, that the League of Nations established on April 20, 1929 a ‘national framework’ to protect against counterfeiting currency—any issuance of legal tender by a government—by criminalizing its practice and prosecuting those individuals that engage in such activities.<sup>254</sup>

In the United States, the integrity of the money is Constitutionally protected, with a mandate to Congress to regulate laws against counterfeiting.<sup>255</sup> Const. Art. I § 8, cl. 6 gives Congress the authority, “To provide for the Punishment of counterfeiting the Securities and current Coin of the United States.”<sup>256</sup>

Although the punishment of counterfeiting the “securities and current coin” of the United States didn’t specifically include currency or paper money—or the presently used Federal Reserve Notes—the courts have long construed that counterfeiting official United States paper money, or “currency,” is a violation of federal law.<sup>257</sup> Title 18 U.S.C. § 473 provides:

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counterfeiting is illegitimate).

251. James L. Dennis, *Interpretation and Application of the Civil Code and the Evaluation of Judicial Precedent*, 54 LA L. REV. 1, 1 (1993) (noting it may be argued that the counterfeiting statutes are not applicable to paper money, but only to coins as these coins were the currency whereas the paper money was only representations of the coins.); Mateusz Machaj, *Against Both Private and Public Counterfeiting*, 66 AM. J. OF ECON. & SOC. 977, 978 (2007) (“First, fiat money is an illegitimate property title to gold and silver, which was stolen from the public. Second, fiat money is illegitimate because its monetary existence is conditioned by the threat of force (competition in the money sphere is forbidden).”). We are not addressing the legality of the United States currency but merely highlighting some defenses and arguments that an alleged counterfeiter may assert. Moreover, the constitutionality and legality of United States currency is a separate issue, although related, to counterfeiting. This concept is also addressed in Part X when we address avenues for future research.

252. See Thayer, *supra* note 21, at 75–76 (discussing one of the earliest published law review debates concerning United States Legal Tender. “Can Congress emit bills and make them a legal tender? In considering the action of the Convention which framed the Constitution it is interesting to observe that this question presented itself, for the most part, not as a twofold question, but as a single one. The matter discussed was the emission of bills. Whatever this might mean, this was the dangerous thing. This was the power which it was proposed, in terms, to give, and this only; and this only is what was stricken out. If it should turn out that the power of emitting bills was not gone, by merely striking out the grant, then, of course, that act is not conclusive upon the question of giving them the legal tender quality. This power of making paper a legal tender may, indeed, be wanting for other reasons, but it is not wanting by reason merely of striking out the expression of a power to emit bills.”).

253. Ben Fung & Enchuan Shao, *Modeling the Counterfeiting of Bank Notes: A Literature Review*, 2011 BANK OF CAN. REV. 29, 34 (2011); see also Elizabeth E. Joh, *Breaking the Law to Enforce It: Undercover Police Participation in Crime*, 63 STAN. L. REV. 155, 156 (2009). It should be noted that law enforcement officers have participated in counterfeiting bills as a method to apprehend individuals that may engage in criminal activities. The two examples are *United States v. Gonzales*, 539 F.2d 1238, 1239 (9th Cir. 1976) and *United States v. Reifsleck*, 535 F.2d 1030, 1035 (8th Cir. 1976).

254. Protocol to the International Convention for the Suppression of Counterfeiting Currency, 112 L.N.T.S. 371 (Apr. 20, 1929); Grandi, *supra* note 217, at 89. Although this agreement was signed by the United States, it has not yet been ratified. Moreover, this agreement authorizes and permits the member states of the European Union to have authority to deal directly with issues involving counterfeiting.

255. U.S. CONST. art. I, § 8, cl. 6.

256. *United States v. Grismore*, 546 F.2d 844, 847 (10th Cir. 1976) (“A person of reasonable intelligence is certainly aware that it is a violation of 18 U.S.C. § 472 to counterfeit a federal reserve note.”).

257. 18 U.S.C. § 473 (2012).

Whoever buys, sells, exchanges, transfers, receives, or delivers any false, forged, counterfeited, or altered obligation or other security of the United States, with the intent that the same be passed, published, or used as true and genuine, shall be fined under this title or imprisoned not more than 20 years, or both.<sup>258</sup>

The word “obligation” in the statute as well as in Title 18 U.S.C. § 472, refers to counterfeit Federal Reserve notes.<sup>259</sup> In fact, this is specifically codified at Title 18 U.S.C. § 8, wherein “obligations of the United States” are defined.<sup>260</sup>

The powers that States have in regulating legal tender with respect to federal currency, bank notes, and foreign (non-U.S.) currency must be considered.<sup>261</sup> Using this information, we consider if States can regulate virtual currency as a common tender.<sup>262</sup> Therefore, we reviewed each State’s statutes using the legal research program WestlawNext. As the terms *counterfeiting* and *forgery* with regards to currency<sup>263</sup> are normally synonymous, the search of State statutes primarily used those terms, among others, to identify a State’s respective criminal and penal codes to consider questions of currency regulation.

#### IX. ANALYSIS OF THE STATES’ REGULATORY POWERS OVER CURRENCY

In this section, we consider each State’s regulatory power over currency.<sup>264</sup> To depict this analysis, the table below presents each State’s regulatory powers, by Code Citation, with respect to United States Currency, Bank Notes, Non-U.S. Currency and virtual currencies. Moreover, it is organized alphabetically by State with the addition of the date of entrance into the union and the date of the last code revision. These dates are important when assessing whether or not the code would need updating and also may provide some historic insight into the severity of the punishments for

258. *Id.*

259. *United States v. Grismore*, 546 F.2d at 847 (1976).

260. 18 U.S.C. § 8 (2012). The term “obligation or other security of the United States” includes all bonds, certificates of indebtedness, national bank currency, Federal Reserve notes, Federal Reserve bank notes, coupons, United States notes, Treasury notes, gold certificates, silver certificates, fractional notes, certificates of deposit, bills, checks, or drafts for money, drawn by or upon authorized officers of the United States, stamps and other representatives of value, of whatever denomination, issued under any Act of Congress, and canceled United States stamps.

261. Tavakol, *supra* note 38, at 1210. The question of sovereignty and its definitions needs to be fully examined in order to consider if a government can effectively regulate currency in general. This brings a critical question: In the U.S., do States have rights as sovereign governments to regulate counterfeiting as applied to U.S. legal tender, or does the Federal government have exclusive rights?

262. *Id.* at 1211. Virtual currencies could erode State sovereignty by the lack of a physical presence within the State’s jurisdiction.

263. The various terms such as counterfeiting and forgery that were used to identify laws pertaining to currency were traced to their source and corresponding code sections to ensure that their meanings were related to currencies. In fact, initial results primarily indicated that counterfeiting and forgery laws were limited to merchandise, pharmaceuticals, and synthetic illegal substances.

264. In fact, a comparative analysis may be made among the States of the United States of America and the member states of the European Union considering that both have a centralized doctrine and directives against counterfeiting.

counterfeiting.

Table 1: The States' Authority to Regulate Counterfeiting Currencies

STATE	Date Entered Union	Date of Last Code Revision	State Code Citation	U.S. Currency	Bank Note	Non-U.S. Currency	Virtual Currency
Alabama	1819	1977	ALA 13A-9-2	Yes	Yes	Yes	No
Alaska	1959	1978	AS11.46.500	Yes	Yes	Yes	No
Arizona	1912	2011	ARS 13-2002	Yes	Yes	Yes	No
Arkansas	1836	1975	A.C.A. 5-37-201	Yes	Yes	Yes	No
California	1850	1998	Cal Penal 476	Yes	Yes	No	No
Colorado	1876	2003	C.R.S.A. 18-5-102	Yes	Yes	Yes	No
Connecticut	1788	1969	CG.S.A.53a-138	Yes	Yes	Yes	No
Delaware	1787	1995	11 Del.C. 861	Yes	Yes	Yes	No
D.C. (non-State)	N/A	1982	NOT APPLICABLE	No	No	No	No
Florida	1845	2001	F.S.A. 831.28	Yes	Yes	Yes	No*
Georgia	1788	2012	Ga. Code Ann. 16-9-1	Yes	Yes	Yes	No
Hawaii	1959	1997	H.R.S. 708-851	Yes	Yes	Yes	No
Idaho	1890	2004	I.C. 18-3601	Yes	Yes	No	No
Illinois	1818	2013	720 I.L.C.S. 5/17-3	Yes	Yes	Yes	Yes
Indiana	1816	1977	I.C. 35-43-5-2	Yes	Yes	Yes	No
Iowa	1846	1996	I.C.A. 715A.2	Yes	Yes	No	No
Kansas	1861	2010	K.S.A. 21-5825	Yes	Yes	Yes	Yes
Kentucky	1792	1975	K.R.S 576.020	Yes	Yes	Yes	No
Louisiana	1812	2001	LSA-R.S.14:72	Yes	Yes	Yes	No
Maine	1820	2007	17-A M.R.S.A. 703	Yes	Yes	Yes	No
Maryland	1788	2003	MD CODE 8-604	Yes	No	No	No
Massachusetts	1788	2013	M.G.L.A. 267-8* M.G.L.A. 287-21**	Yes	Yes	No	No
Michigan	1837	2013	M.C.L.A. 750.257***	No	Yes	No	No
Minnesota	1858	2006	M.S.A. 609.632	Yes	No	No	No
Mississippi	1817	2012	MISS. CODE ANN. 97-21-13	Yes	No	No	No
Missouri	1821	2002	V.A.M.S. 570.090	Yes	Yes	Yes	No
Montana	1889	2009	MCA 45-6-325	Yes	Yes	Yes	No
Nebraska	1867	1977	Neb. Rev. St. 28-602	Yes	Yes	Yes	No
Nevada	1864	1995	N.R.S. 205-090	Yes	Yes	Yes	No
New Hampshire	1788	2013	N.H. Rev. Stat:638:1	Yes	Yes	Yes	No
New Jersey	1787	2002	N.J.S.A. 2C: 21-1	Yes	Yes	Yes	No
New Mexico	1912	2006	N.M.S.A. 30-16-1c	No	Yes	No	No
New York	1788	1965	McKinney's Penal Law 170.15	Yes	Yes	Yes	No
North Carolina	1789	2002	N.C.S.G.A. 14-119	Yes	Yes	Yes	No
North Dakota	1889	1973	NDCC 12.1-24-01	Yes	Yes	Yes	No
Ohio	1803	2011	OHIO R.C. 2913.32	Yes	Yes	Yes	Yes

Oklahoma	1907	2013	Okl St. Ann 1577	Yes	Yes	No	No
Oregon	1859	2005	O.R.S. 165-013	Yes	Yes	Yes	No
Pennsylvania	1787	2003	18 Pa.C.S.A. 4101	Yes	Yes	Yes	No
Rhode Island	1790	1956	GEN LAW 11-17-2	Yes****	Yes	No	No
South Carolina	1788	2002	N.C.G.S.A. 14-119	Yes	Yes	Yes	No
South Dakota	1889	2005	SDCL 22-39-36	Yes	Yes	Yes	No
Tennessee	1796	2009	T.C.A. 39-14-115	Yes	Yes	Yes	Yes
Texas	1845	2009	V.T.C.A. 32.21	Yes	Yes	Yes	Yes
Utah	1896	1953	U.C.A. 76-6-518	Yes	Yes	Yes	Yes*****
Vermont	1791	1981	13 V.S.A. 1804	Yes	Yes	Yes	No
Virginia	1788	1975	VA CODE ANN 8 18-2-170	Yes	Yes	Yes	No
Washington	1889	2011	RCWA 9A.60.020	Yes	Yes	Yes	Yes
West Virginia	1863	1923	W.V. Code 61-4-3	Yes	Yes	Yes	No
Wisconsin	1848	2013	W.S.A. 943.38	Yes	Yes	Yes	Yes
Wyoming	1890	2007	W.S. 1977 63-602	Yes	Yes	Yes	No
Notes: *Florida may be able to regulate counterfeiting virtual currency if other non-criminal statutes are considered. **Massachusetts M.G.L.A. 267-8 only applies to bank notes and traveller's checks; and M.G.L.A. 287-21 only applies to currency of the British Provinces of North America. ***Michigan M.C.L.A. only applies to bank notes. ****Rhode Island counterfeiting currency laws only applies to United States coins (1956 11-17-7). *****Utah statute is overly broad and ambiguous, therefore an argument can be made that it encompasses virtual currency.							

Based on the criminal statutes above, States (with the exceptions of New Mexico and Michigan) have granted themselves the power to penalize counterfeiting United States currency. Since United States currency is composed of both coins and paper, many States have made distinctions between coins and paper currency in criminal statutes. For example, Rhode Island's counterfeiting statutes only applies to United States coins and not paper money. However, jurisdictional limitations may be imposed against a State regulating the counterfeiting of United States currency by the United States. This discussion is outside the scope of this paper as it requires a comprehensive analysis of not only federal law, but case law as well.

Most States have the ability to regulate counterfeit bank notes and securities. This is not unusual as the free-banking era created historic problems of inflation and liquidity,<sup>265</sup> and States had a significant interest in establishing a better more prosperous economy. Only Maryland, Minnesota, and Mississippi do not have counterfeiting statutes for bank notes. Overall, Massachusetts M.G.L.A. 267-8 has the most stringent criminal penalty—life in prison—for counterfeiting bank notes and reads as follows:

Whoever, with intent to injure or defraud, falsely makes, alters,

265. Alan Greenspan, *Harnessing Market Discipline*, FED. RES. BANK OF MINNEAPOLIS (Sept. 1, 2001), <https://www.minneapolisfed.org/publications/the-region/harnessing-market-discipline>.

forges or counterfeits a bank bill or promissory note payable to the bearer thereof or to the order of any person, issued by any incorporated banking company or an instrument described as a United States Dollar Traveller's Check or Cheque, purchased from a bank or other financially responsible institution, the purpose of which is a source of ready money on cashing the instrument without identification other than the signature of the purchaser, shall be punished by imprisonment in the state prison for life or for any term of years.<sup>266</sup>

Although thirty-nine states have the ability to regulate counterfeiting non-U.S. currency, these statutes varied among states. Eleven States (California, Idaho, Iowa, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, Oklahoma, and Rhode Island) do not have the authority to regulate counterfeiting non-U.S. currency; and eight of the eleven States have revised their counterfeiting statutes within the last ten years. Even though Massachusetts does have the authority to regulate British currency, it is limited to the British Provinces of North America that would require significant review of Canadian legal systems and United Kingdom Parliamentary Acts;<sup>267</sup> therefore, it was interpreted to not be applicable to non-U.S. currency.

Surprisingly, eight States (Illinois, Kansas, Ohio, Tennessee, Texas, Utah, Washington, and Wisconsin) have counterfeiting statutes that can apply to virtual currency. With the exception of Utah, these States have revised their statutes since 2009. Although Utah last revised its statute in 1953, Utah's statute was the most generally constructed code that can be interpreted to apply to any financial instrument, public or private, government and non-government issue, or any other security that could be used as a method of exchange. U.C.A. 76-6-518 Criminal simulation states:

- (1) A person is guilty of criminal simulation if, with intent to defraud another:
  - (a) he makes or alters an object in whole or in part so that it appears to have value because of age, antiquity, rarity, source, or authorship that it does not have;
  - (b) he sells, passes, or otherwise utters an object so made or altered;
  - (c) he possesses an object so made or altered with intent to sell, pass, or otherwise utter it; or
  - (d) he authenticates or certifies an object so made or altered as genuine or as different from what it is.<sup>268</sup>

Although Florida does not have a direct counterfeiting statute that would prohibit virtual currency counterfeiting, other non-criminal statutes coupled with case law might provide a foundation for the prohibition of counterfeiting. Similarly, States may have other non-criminal statutes and case laws defining,

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266. MASS. GEN. LAWS ch. 267, § 8 (1974).

267. *Id.*

268. UTAH CODE ANN. § 76-6-518 (West 1953).

clarifying, and further modifying a State's ability in combating counterfeiting.

With the lack of Federal regulation upon virtual currencies, it is likely that States<sup>269</sup> will begin regulation of this virtual property based upon their respective previous experiences, as defined by significant historical events.<sup>270</sup> With respect to the dates that each state entered into the union,<sup>271</sup> preliminary analysis provides some interesting facts concerning the regulation of currency. The States (Connecticut, Delaware, Georgia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, and Virginia) that compose the original thirteen colonies do not have the authority to regulate digital currency. Additionally, in considering that geographical borders of States and Nations do not directly apply to virtual currencies, geography still applies to people—the users of such currencies. As gaps in Federal regulations concerning virtual currencies exist, States may exercise their sovereign rights and those rights not given to the Federal government to regulate virtual currencies and the users of virtual currencies. Thus, it is essential that the rights to virtual currencies, as noted in our first general requirement, be defined as an intangible personal property.<sup>272</sup>

Since property rights are significantly important within an economy, legal protections including counterfeiting criminalization help ensure consumer confidence in the financial instruments used to facilitate exchanges in goods and services. As financial transactions have shifted historically from various governments' legal tender to combinations of government and private issuances and from the hard currency of coins and paper to electronic transactions, many States' counterfeiting statutes are unclear or fail to consider that technological changes can impact legal and common tender.

## X. CONCLUSION

Our research indicates that State counterfeiting statutes assign various values on financial instruments used as mediums of exchange. Although

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269. Press Release, N.Y. Dep't of Fin. Serv., Proposed BitLicense Regulatory Framework for Virtual Currency Firms (July 17, 2014), <http://www.dfs.ny.gov/about/press2014/pr1407171.html> [hereinafter *NYDFS*] (New York is moving towards the regulation of virtual currencies such as Bitcoin); Tan, *supra* note 58, at 27 (this is not surprising as Tan identified New York and West Virginia as having Senators advocating the need for the regulation of virtual currencies).

270. We consider that significant historical events can change public policies and economies with a greater impact than ongoing operations. First, historical events can be readily identified—some more than others. Secondly, historical events can be tied to specifics point in time for a further analysis. Thirdly, significant events also test traditional policies, strategies and laws through spirited debates and events. Finally, laws may be more resistant to change significantly unless some historical event has occurred or public policy has experienced a paradigm shift. As with any decision, evidence (historical by nature) is considered and evaluated for reliability and for avoiding mistakes.

271. The date each State entered into the Union is the first significant date, which we believe, to help shape the laws and traditions of that State. It is that birth date that helps define an entity or State's social status and identity, an order of precedence and a culture of tradition. While there are other historical events that can be considered, those events are beyond the scope of this paper and should be considered avenue for future research.

272. U.S. CONST. amend. V; U.S. CONST. amend. XIV. The property designation is significantly important as Constitutional arguments can be made concerning *Due Process* and the unlawful taking of such property.

United States currency is defined as the legal tender of the United States,<sup>273</sup> States make varying distinctions in property rights between coins and paper notes and in general values of United States currency as expressed in the market values when considering the supply of currency, and its demand. Concerning the current legal environment surrounding States regulatory power regarding virtual counterfeiting, we found that most States do not have direct rights to regulate virtual currency except to potentially consider virtual currency as intangible personal property or intellectual property which may or may not be subject to a trademark or copyright enforcement.<sup>274</sup> In essence, counterfeiting a virtual currency may even be subject to virtual trespassing laws assuming a State had enacted such. However, virtual currency, if created by and recognized by a foreign nation, virtual currency may be regulated as a non-U.S. currency, assuming that this virtual currency is in fact granted the same status as legal tender.<sup>275</sup>

Although Part IX presents an initial overview of States' regulatory powers with regards to virtual currency, a more detailed analysis needs to be performed. Thus, we present four speculations that would further clarify state regulatory powers concerning virtual currency for researcher to consider.

- First, counterfeiting laws may correspond to when a State entered the United States: A Commonwealth, pre-civil war, post-civil war, and establishment of the Federal Reserve.<sup>276</sup> This speculation must also consider the conditions in which a State entered the Union and from where the State's legal system originated. We have already noted that the States composing the original colonies do not have the power to regulate counterfeiting.
- Secondly, States that have borders with Mexico and Canada and those States also serving as ports of entry (*e.g.*, sea ports, international airports, railways, and borders) into the United States may have more stringent counterfeiting laws. Although virtual currency can largely ignore such boundaries, most of the counterfeiting statues focus on

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273. 31 U.S.C. § 5103 (2012).

274. Tavakol, *supra* note 38, at 1224 ("Neither the state laws nor the federal regulations within the United States that try to regulate e-money attempt to address the international implications of the e-commerce. Yet, e-money necessarily implicates sovereign nations and the global market, creating legal and economic challenges on both a national and worldwide scale.") It should be noted that we identified that UTAH CODE ANN. § 76-6-518 (West 1953) was in force during the above generalization. We contend that counterfeiting is an important and critical aspect of the regulation of currency. Moreover, other legal provisions (*i.e.*, copyright and trademark laws) may be applied to common tender and thus virtual currencies.

275. This concept is beyond the limited scope of this paper. Moreover, significant consideration must be given to international law and United States law as it applies or restricts State rights. However, this paper presents the foundation for the exploration of these concepts and more.

276. From this review, evidence notes that Massachusetts has the harshest counterfeiting laws. However, reviewing the legislative history would provide a better understanding of the justifications and thinking behind those laws. For example, Benjamin Franklin received several contracts for printing currency from State governments. In fact, exploring the early processes of fiscal policies among the Commonwealths and States would provide a deeper understanding of early economic policy with respect to the regulation of currency. Moreover, this may provide similarities between hard currencies and virtual currencies. Furthermore, a national significant event could trigger and subsequently give rise to the promulgation of rules and the passage of laws. For example, the events of 9/11 lead to the passage of P.L. 107-56 The USA Patriot Act of 2001 in which significant changes were made to the Bank Secrecy Act of 1970.

illegal goods and pharmaceuticals. As these ports of entry are likely to be the first to suffer economic damages, they are also more likely to enact laws that mitigate damages from counterfeiting. Additionally, the laws constructed, outside of the criminal code of our review, may be ambiguous enough to apply to the regulation of virtual currency.

- Thirdly, States may have alternative laws such as financial transactions, electronic signature devices, and electronic commerce that may be applicable to counterfeiting. A much deeper analysis must be undertaken to identify relevant State laws that may be applicable to virtual transactions. As Federal agencies, most notably the Internal Revenue Service and FinCEN, are defining virtual currencies as properties with certain characteristics similar to socks, bonds and investments, the argument for State laws pertaining to financial transactions being applicable to virtual currencies becomes stronger. Likewise, so do the regulations that involve counterfeit goods as goods are provided the legal status of property. Similar to the ambiguity of Utah's *U.C.A. 76-6-518* being able to regulate cryptocounterfeiting, it is likely that some current laws focusing on the counterfeiting of goods can be applicable to virtual properties.
- Finally, although the States have the ability by means of State statutes to enforce counterfeiting, are these State statutes in conflict with the Federal government. Are users in fact, *holders in due course* where the owner is the United States Treasury?<sup>277</sup>

Furthermore, as presented in Part IX, only eight States have the ability to combat the counterfeiting of virtual currency. With the recent trends in cyber-crimes and technological advances in cryptology and security, virtual currency has emerged and we believe that the opportunity for securing the rights of "virtual entrepreneurs" is now. Thus, we suggest the following criminal statute or similar statute to be incorporated into the criminal or penal code:

A person is guilty of criminal simulation if, with intent to defraud another: that person creates or modifies an instrument that is to be used as a medium of exchange and receives goods or services by falsely representing said instrument is authentic or otherwise genuine.

Consumer confidence in government-backed legal tender has dropped and may have contributed to discussions concerning virtual currency.<sup>278</sup> Discussions concerning easier, more effective ways to complete financial transactions have taken shape as financial transactions have shifted from hard currency to electronic transactions. Virtual currency is becoming an important part of our legal tender. States, governments, and international entities, must

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277. To answer this question, a comprehensive review of the Congressional history, as well as significant United States Court cases, would have to be examined. Moreover, each regulating authority's rules must be investigated to determine how these laws may be interpreted and applied, at least by one party. Furthermore, the arguments of defense against the charge of counterfeiting must be appropriately considered to deepen the understanding of the stated question.

278. Angel, *supra* note 193.

address the growing influence of virtual currency, before it becomes a significant percentage of the world economy. At that point it will be too late. Regulations, responsibilities, and safe guards should be developed at this stage of the virtual currency evolution.